APRIL 1959

The American City

New York's "Clean Sweep" Campaign gets results. See pages 3 and 96.

Golden Anniversary Year

This fast-growing county needed Better Roads

Pair of rollers put finishing touch to new Texaco Asphaltic Concrete pavement on Nassau Road in Nassau County, N. Y.

Its answer: A large-scale resurfacing program with Asphalt

Nassau County, N. Y., located next to New York City on Long Island, has grown by leaps and bounds until its population has passed 670,000. It has outgrown all other counties in the state, except those of New York City and Buffalo.

One of the inevitable results of such growth has been the demand for better roads and streets. Nassau County solved this problem effectively, yet economically. It decided on a large-scale program of resurfacing existing pavements with durable, hot-mix Asphaltic Concrete.

The new Asphaltic Concrete wearing surface is laid rapidly, with minimum inconvenience to traffic. It will deliver many years of service with low upkeep cost under this county's greatly increased traffic.

Texaco Asphalt plays an important part in Nassau County's extensive road improvement program. Whether your own roads and streets need a heavy-duty pavement, or a low-cost surface for light traffic, there is a type of Texaco Asphalt construction exactly suited to your requirements. Helpful information on all of these types is supplied in two free brochures. Interested municipal officials can obtain copies without obligation by writing our nearest office.

Clinton Road, one of many busy Nassau County thoroughfares paved with Texaco Asphaltic Concrete by the Standard Bitulithic Company, Baldwin, N. Y.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO

REG. T. M.

TEXACO ASPHALT

Golden Anniversary Year
1909-1959

The American City

APRIL 1959

A Buttenheim Publication

Administration and Government
Our Municipal Notebook **35, 38, 39, 41**
Library Stresses Baltimore Progress **104**
Some Tips on Small City Administration **107**
Borough Hall Sprouts Wings **108**
City Staff Moves Bag and Baggage **113**
The Manager Plan Is Good, But. . . **115**
Municipal Public Relations—The City Tells Its Story **139**

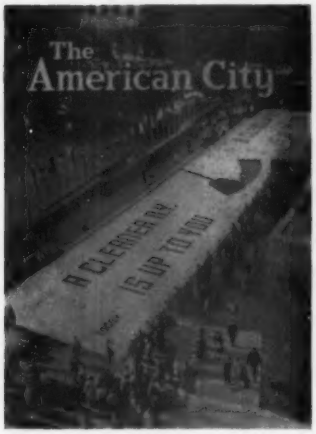
Business Machines and Systems
A Small City Can Mechanize Its Financial Procedures **190**

Street Construction and Maintenance
Street Cleaning
Anti-Slide Treatment Improves Bridge-Ramp Safety **9**
Roadbuilding Wrinkle **9**
Ten Tons Make Street Carpet Smooth **11**
Driveway Design Standards for Today's Autos **11**
A Sweeper Leads the Parade **44**
Expressway Construction Uses Large-Scale Landscaping **45**
Cost Sharing, Cost Saving Street Pavement **85**
Out of the Dust and Mud **149**
Noisy Pavement Gives Stop Sign Warning **150**

Lighting
Some New Pole Designs **116**
Scotland Asks Better Taste in Street Furniture **116**
Street Lights and Aircraft **121**
Peebles Corner—A Bright Spot in Cincinnati **123**
Longer Life for Westinghouse Mercury Lamps **123**
Maintaining Trucks That Service New York's Lights **124**
Minimum Light to Stop Car in Time **124**

Power
V-Block Power Unit Pays Off **105**

Sewerage and Sewage Purification
$3,500 Ahead of Sanitary Sewer Construction **27**
New Use for Old Toy **27**
Photogrammetry Keys Sewer Project for 140,000 Postwar Families **92**
Complete Treatment for a Cleaner River **187**



COVER PICTURE

A lot of soap on Rockefeller Plaza started New York's 1957 big sweep campaign sponsored by the Citizens Committee to Keep New York City Clean. Thirty-five girls from Barnard College worked from midnight to 6:00 a.m. placing 108,000 bars of soap in the form of a giant campaign banner. Wrapped bars made up the letters and unwrapped bars of pink soap formed the background. The banner was the largest layout job ever performed by Young & Rubicam, Inc. See the story on page 96.

Water Supply and Treatment
Plastic Coating Saves Old Water Tank **15**
Cincinnati's Suburban Pumping Station **15**
Nature Provided Part of Our Water System **88**
Sparkling Clear Water **110**
Pipeline Laid on Rails Through Miniature Tunnel **114**
Modern Water Rates—Part IV **163**
Water Development Planning Pays Off **175**
Meter Readers Take to the Air **181**

Purchasing
Stimulate Competition on Public Business **160**
Leasing Needed Municipal Equipment **160**
Purchasing News **217**

Public Safety
Extra Aid Needed **29**
Berwick's Volunteer Police **19**
The Policewoman in Family Problems **29**
Microwave Radio and Teleprinter Circuit for Police **91**
Firemen License Bicycles for Burbank Youngsters **106**
Instant Photographs in Police Work **179**

Traffic Control
Chicago's Parking Exhibit **87**
Central Traffic Distributor for Downtown Stamford **109**
East Orange's Platform for Signal Repairs **129**
Boston's Prosperous Circumferential Highway **130**
Leapfrog Parking in Columbia, S. C. **130**
Because It Lasts Longer **133**
Parking Meter Rates Going Up **133**
T Intersections Safer **137**
More Parking Meters for New York City **137**

Planning, Zoning and Housing
Redondo Beach Plans Harbor-Business Renewal **90**
How to Get Municipal Park Sites **99**
City Planning Is Booming in New England **145**

Refuse Collection and Disposal
Press Comment Spurs Litter Drive **43**
City Ordinance Governs Refuse Storage Area **44**
Private Trash Collectors Must Get Covered Trucks **45**
New York City Is Cleaner **96**
Drained Canal Serves as Sanitary Landfill Site **102**
Incineration Costs at Louisville, Ky. **157**

Parks and Recreation
Denver, Colo., Hides Vacuum Breakers With Park Sign **22**
Pawtucket, R. I., Builds Itself a Zoo **22**
How to Get Municipal Park Sites **99**
We Make Turf Aerification Efficient and Convenient **112**
Rebuilding Public Rest Rooms **170**

Air Pollution
Air Pollution Control Notes **35**

Miscellaneous
"Handicapped" City Employees **93**
What Congress Is Doing for the Nation's Cities **190**
Tree-Trimming By-Product Becomes a Multipurpose Material **193**

Departments
Letters to the Editor **7**
Free Catalogs **46**
Zoning Notes **197**
Legal Notes **198**
Conventions: When and Where **205**
Municipal and Civic Publications **209**
City Managers **210**
Bond Market **215**
About People **235**
Professional Directory **239**

For Index to Advertisers see page 251

40,000,000 More People Will Need Telephone Service

Good and abundant telephone service is an indispensable part of the progress, prosperity and defense of the country.

As the population grows and grows (it will be increased by 40,000,000 by 1970) it is clear that more and more communication service will be needed.

This will require large amounts of new capital and the telephone business must have good earnings to provide the service and compete for the investor's dollars. There is no other way.

Sometimes there is a tendency to think that the approval of adequate earnings is wholly in the interest of the company and that it should be resisted automatically, regardless of the need.

Actually it benefits you as a telephone user, your community, and your state.

The gain is not only in direct telephone jobs and wages but in helping each state encourage and attract other businesses. You cannot keep prosperity up while regulating telephone expansion and employment down.

NEW CUSTOMER!
Over 11,000 babies are born every day in the U. S.

Telephone users benefit by sharing the economies and efficiencies that come from being able to plan and build ahead. A repressive policy on company earnings, by limiting research, progress and long-term economies, would lead almost inevitably to poorer service at a higher price than you would otherwise have to pay.

Bell Telephone System

Want New Industry?

In general, cities want industry. No doubt there are some like the community near Princeton, N. J., whose people voiced stout opposition to industry as a neighbor. But these cities are few compared to the number of those who want and will go to almost desperate lengths to get a plant or factory.

Undoubtedly industry will continue to decentralize. An industry can produce at a lower cost in one- or two-story buildings that permit good assembly line techniques and thrifty material-handling costs. The relatively low cost of electric power and the widespread availability of inexpensive natural gas have long since released industry from the regional ties of water power. Good highways have cut its dependence on railroad centers. The small, decentralized factory is increasing and will continue to increase.

Industry may not decentralize much this year. In general it still is recovering from the recession and has plenty of unused plant capacity in good condition. We probably can expect the trend to start in 1960.

On the average for every employee hired, industry must make a capital investment of $20,000. *Consequently management has ample reason to be extremely cautious in deciding where this very substantial investment will be made.*

Some factors that influence industrial location no community can control. No city can change its closeness to the market or raw materials. A city has a hard time changing freight rates. It cannot insure continuous good weather. The city government would have trouble guaranteeing a productive labor force.

But there are other factors, and vitally important ones, that it can control. It can see that it has ample water supply both for industrial and residential uses. It can improve its sewerage and sanitation services, its recreational facilities, its police and fire protection, its public school system. It can supply an honest, efficient and reliable government supported by an active, responsible citizenry. Without these, a community might as well forget about industrial support and accept a stagnant, declining economy.

In passing, one should note the value of the

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Editorial and Executive Offices:
470 Fourth Avenue, New York 16, New York • MUrray Hill 5-9250
Edgar J. Buttenheim, Chairman of the Board • **Donald V. Buttenheim,** President
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Associated Publications

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PROJECT PAYDIRT* *pays off again*

NEW CAT D7 SERIES D TRACTOR

For higher production at lower operating cost

BY ANY comparison the new Cat D7 Series D Tractor is champ in its class. It packs 140 horsepower . . . matched with 80% more lugging ability than the previous model—for greater production. And it delivers this production at lower operating and maintenance costs. The payoff for you . . . increased performance that no other tractor in this power range can match.

Major improvements, developed by Caterpillar's Project Paydirt, affect the engine, power train and undercarriage. And the new Series D retains the exclusive Caterpillar Oil Clutch. It's time-tested; delivers up to 2,000 hours—one whole season—without adjustment.

For complete facts about the leader, see your Caterpillar Dealer. He's ready to give you the whole story on the new D7 Series D. And he'll arrange a demonstration on your job.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

NEW ON THE D7 SERIES D

TURBOCHARGED ENGINE features 9% horsepower increase, 80% more tractor lugging ability. Optional in-seat starting is available. The payoff . . . more production!

DRY-TYPE AIR CLEANER removes at least 99.8% of all dirt and dust from engine intake air during every hour. Cleaner can be easily serviced in 5 minutes. Filter element can be re-used. The payoff . . . economical, convenient maintenance and longer engine life.

SERVICE-FREE TRACK ROLLERS, carrier rollers and idlers are lifetime lubricated. New load-carrying design increases roller life. The payoff . . . longer life, no on-the-job lubrication shutdowns.

PRESSURE-LUBRICATED POWER TRAIN insures complete circulation of filtered oil to transmission, bevel gear and pinion. To transmit increased power, power train components have greater strength. The payoff . . . longer gear life, trouble-free operation.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BORN OF RESEARCH
PROVED IN THE FIELD

* ***PROJECT PAYDIRT:*** Caterpillar's multi-million-dollar research and development program — to meet the continuing challenge of the greatest construction era in history with the most productive machines ever developed.

"Workable Program" that the federal government's Housing and Home Finance Agency specifies as qualification for participation in its urban renewal activities. This program requires that a city's building and housing code be in order, that it have a planning program and the means to act on it. It guarantees that the city is financially able to proceed, has taken a good, hard look at its budget, tax and financing procedures, and has developed a program that can work.

Then there are other tools that a city can use to interest an industry. Some embrace subsidies and tax exemptions. Many students of government question them since they provide public funds for an individual concern.

This doubt may not be wholly justified. A good industry provides a public as well as a private benefit. According to one old-time rule of thumb, every man employed in a basic industry, such as a factory, will support a man in a service industry, such as a food market or gas station, and will provide economic support for six people. As is the case with most such rules, it is useful chiefly to illustrate a point, and the point is that a good industry helps the entire community.

One industry-enticing tool frequently used is the Industrial Foundation. This generally is a community-financed organization that offers assistance to prospective industries. It can provide factory buildings at low rentals, cash loans at low rates of interest. It may donate a site.

Then there are straight tax exemptions. For the past 50 years, some 16 states have permitted temporary exemption of taxes for newly located or newly constructed plants. Puerto Rico is aggressively building an industrial economy by this method. Five states have passed laws that allow cities to use their borrowing power to build factory structures and other improvements needed by prospective industries.

However, there is no need to think that a low tax structure automatically will bring in good industry. In some cases it has frightened them away. Low taxes generally mean poor municipal services and the almost inevitable forecast that if industry locates there the tax rate will jump.

A number of consultants offer their services to help them find suitable plant sites. Most of these same consultants will analyze a municipality and advise it what industries it can expect to attract. The names of many such firms can be obtained from the Tax Institute, Inc., 457 Nassau Street, Princeton, N. J., or through the editorial offices of this magazine. The Tax Institute book, "Business Enterprise and the City" offers much help to a city in making a study of its industrial potential.

Industry is looking and will continue to look for new plant sites. Part of its search will be inspired by the need for added productive capacity; part by the abandoning of obsolescent, inefficient equipment; part by the desire to find more productive labor; and part by the location of markets and raw material.

But basically every industry wants some indication that the community is on its side.

Letters to the Editor

Incinerator Performance Questioned

I have read with great interest the article in your February issue entitled, "A Custom Designed Incinerator," by Joseph W. Watson, City Manager, Hollywood, Fla. (p. 102). To say the least, some of the facts and figures given are most startling, and I also find the photographs fascinating.

This is apparently a two-unit 450 tons per 24 hours plant, of the floor-fed design; according to the author, these two furnaces, under test, actually operated at a capacity of 576 tons per 24 hours, or roughly 28% over design capacity. I am trying very hard to visualize this operation; a continuous stream of trucks dumping their refuse upon the floor if the photo on page 104 is a clue, then with one man assisting and another on a bulldozer, charges at the rate of 24 tons per hour are made into each of the charging holes, or about 2½ cubic yards of refuse every minute of the day.

Perhaps the most remarkable feature is the simple solution of the problem of air pollution control. There are several devices and designs marketed by concerns specializing in this esoteric and not too exact science having one thing in common; their high cost. If I read this article correctly, all that was really provided here was a wet bottom beyond the expansion chamber, and according to the article the average of three "tests" showed a stack effluent with a solid content of 0.062 grains per cubic foot from one unit, and 0.098 grains per cubic foot from the other, corrected to 12% CO_2. Now these are truly extraordinary results, and I must confess that we have been hard put to attain them with more complex apparati, at least at design capacity. These figures indicate the ability to keep the solids discharge to approximately one-fifth of the maximum allowable stated in most codes. At the risk of Macy's telling Gimbels where there are good business opportunities, I can see a tremendous future for this design, particularly in Los Angeles County.

The article also notes that the stacks operate on natural draft, and are 65 feet high and 11 feet inside diameter. When one considers that most modern incinerator plants have radial brick stacks ranging from 125 feet to 250 feet in height, with

(Continued on page 18)

Are You Having Compaction Problems?

BACKFILL SINKING? *TRENCHES OPEN TOO LONG?*

. . . Eliminate with a Terrapac Vibratory Compactor!

IMPACT FORCE 2300 LBS.

TERRAPAC CM-15

IMPACT FORCE 3-1/3 TONS

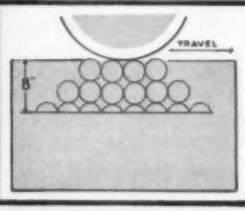
TERRAPAC CM-20

Small, self-propelled, one-man operated, heavy-duty vibratory tampers now enable you to really compact crushed stone, sand, gravel, etc. without bringing in 10-20 ton static rollers. . . . They are also ideal for small asphalt jobs including patch work. . . . The CM-15 will compact lifts up to 12 inches, while the CM-20 penetrates up to 30 inches — in one or two passes. . . . Prove it to yourself — on your own job. . . . To arrange a demonstration, contact your local Vibro-Plus distributor or write to us direct.

Ad 41-80

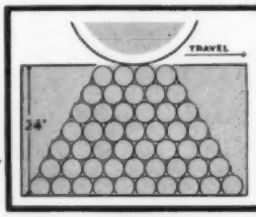
SPECIFICATIONS

	Impact	Frequency VPM	Travel Speed	Weight
CM-15	2300 lbs.	2350	up to 55' per min.	242 lbs.
CM-20	6600 lbs.	2000	up to 75' per min.	950 lbs.



CONVENTIONAL STATIC COMPACTION

Static rollers, relying on weight alone, produce friction forces between soil particles causing bridges to form. Terrapacs break bridges for deep compaction.



TERRAPAC DYNAMIC COMPACTION

Vibratory energy breaks frictional forces binding soil particles together, allows soil to sift down producing uniform densities at greater depths.

VIBRO-PLUS TERRAPAC

VIBRO-PLUS PRODUCTS, Inc.

STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES!

These two lanes of steel plates with non-skid surfaces provide increased safety against one of Pittsburgh's worst traffic hazards. Motorists can drive over this approach without fear of punctures or skids.

Anti-Slide Treatment Improves Bridge-Ramp Safety

MOTORISTS driving over the Manchester Bridge ramp, one of downtown Pittsburgh's worst traffic hazards, do so with increased safety since the application of abrasive-coated steel plates. The plates are coated with Relcote, a product of the Reliance Steel Products Company, McKeesport, Pa. Relcote consists of a non-skid, resinous material embedded with carborundum grit and bonded to 3/8-inch steel plates in this application.

The plates on the Pittsburgh job are 3 feet by 10 feet in size and weigh 450 pounds each. Reliance used 20 tons of the material to improve safety on the 203-foot radius-curve section of the five-percent-grade wooden ramp. Bolted to the rough, oak flooring of the ramp, they form two non-skid traffic lanes.

Features of Relcote leading to its use on this and other bridge surfacing jobs include adhesion to steel in shear or in tension of not less than 2,500 psi; ability to be bonded to steel plates or placed directly on concrete or asphalt roadbeds; and retention of its non-skid qualities when wet or oil covered. It is not affected by de-icing road salts.

Other bridges having Relcote applications include the George Washington Bridge; San Francisco Bay Bridge; and the Passaic Bridge on the New Jersey Turnpike.

Roadbuilding Wrinkle

In its road-building program Noble County, Okla. takes advantage of sandstone rock outcroppings covered only by a thin layer of soil. Using two county-owned International TD-9 crawlers, the road crews push away the cover soil and with rippers crush the rock into fragments. The shattered rock is then stockpiled and later loaded into trucks and spread 6 to 8 inches deep on the roads. A motor grader blades it level and a TD-14 with a sheepsfoot roller finishes the job. Regular traffic soon compacts the material into a smooth, all-weather surface.

No. 955 excavates part of a total of 19,000 yd., preparing for base an area 20 ft. wide, 12-13 in. deep. Cuts are made by Cat No. 12 Motor Grader and windrowed. Job is part of a $1,828,366 project by Gulf Bitulithic Co. on U. S. 75, to be part of the Interstate Highway System.

Says Operator F. H. Leggett: "I can move over 100 cu. yd. a day more with the side dump than with other loaders. It doesn't spill dirt because you don't have to jockey for position. A Traxcavator is easy to operate and I'm less tired at night. It's the best on the market."

Weather bad... No. 955 terrific... job on schedule!

The performance and versatility of a Caterpillar No. 955 Traxcavator with Side Dump Bucket was vividly demonstrated on a recent highway project in Texas. What happened is of importance to every municipal and county official concerned with the purchase of equipment.

Bad weather cut work days to 20 per cent during the first six months on a 2½-mile widening job on U.S. 75 at Conroe, Texas. A drag line proved a poor producer in the shallow cut. Switching to a Cat No. 955 Traxcavator with Side Dump Bucket, Gulf Bitulithic Co., Houston, Texas, got the job back on schedule—and kept it there! Five-yd. trucks were loaded in an average time of three minutes; four buckets to the truck.

"We increased production 25 per cent," says Superintendent Thomas "Red" Brown. "I like that Side Dump Bucket. You can't beat it."

In-line loading of trucks with the Side Dump Bucket paid off in less traffic congestion on the busy highway, and it also avoided tearing up the subgrade with twisting and turning.

Side Dump Buckets are available on all three Traxcavators: No. 977 (2¼ cu. yd.), No. 955 (1⅝ cu. yd.), and No. 933 (1⅛ cu. yd.). Other buckets, teeth, 'dozers and forks help make a Traxcavator the most versatile excavator-loader.

More and more municipalities and counties are finding the performance and versatility of Cat-built Traxcavators can save taxpayers' money. Ask your Caterpillar Dealer today to demonstrate on your operation. And remember, his reliable parts and service facilities stand behind your investment.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

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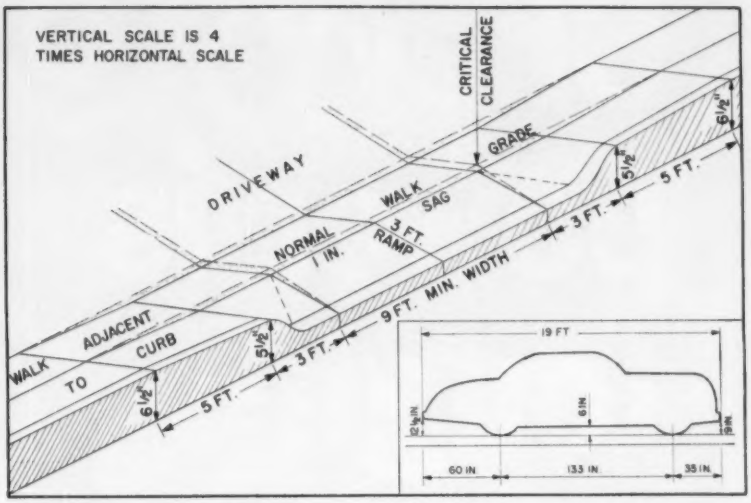
YOUR TAXPAYERS GET THEIR MONEY'S WORTH WITH CAT-BUILT MACHINES

Driveway Design Standards For Today's Autos



Cincinnati driveway design in projection drawing. Inset shows cutout of largest car.

ACCESS driveways, parking lots, park drives, need reviewing today in light of modern auto design. The modern principles were disclosed recently in a symposium devoted to vehicle characteristics and highway design sponsored by the Highway Research Board, National Academy of Sciences, National Research Council, 2101 Constitution Ave., Washington 25, D. C.

According to Elmer R. Haile, Jr., highway design engineer, Bureau of Public Roads, today's cars will not scrape their bumpers if the sag in vertical curves has a 75-foot minimum radius. The underbody will not scrape if the crest in vertical curves has a minimum radius of 45 feet.

W. A. McConnell, of the vehicle testing staff, Ford Motor Company, recommends strongly a vertical sag of at least 90 feet. This would require not more than a 5% change in slope between any two 10-foot chords. Thus, the ramp over a 6-inch curb should be at least 10 ft. long. He recommends no more than 1½-in. clearance between pavement and 10-ft. straightedge.

Mr. McConnell also feels that many short wheelbase cars will find trouble if the sag in vertical curves is less than 90 feet, and certain long cars will run into trouble passing over the crests of vertical curves of less than 75 feet.

L. A. Bauer, expressways engineer, Cincinnati, Ohio, feels that the safest way to design these critical driveways and roadways is to make a model study. He makes a model cutout of one of the longest cars:

Over-all length	19 feet
Wheelbase	133 inches
Rear bumper clearance	12½ inches
Front bumper clearance	9 inches
Underbody clearance	6 inches
Front wheel to bumper	35 inches
Rear wheel to bumper	60 inches

His procedure to avoid trouble is first to design the driveway or roadway to available standards; next, plot the profile on a natural (2:1) scale; third, slide the cutout model over it and make the needed adjustments.

A few years ago, Cincinnati revised its typical design standards for driveways to accommodate the change in auto body design. This decreased the curb depth from 6½ to 5½ inches across the driveway, and sags the walk grade by one inch.

The entire symposium (Bulletin 195) can be obtained from the Highway Research Board for $1.

Ten Tons Make Street Carpet Smooth

TO WIND UP a standard road-mix oil job, Kern County Department of Highways and Bridges teamed an Allis-Chalmers D-17 tractor with a 10-ton Tampo pneumatic-tired compaction roller.

Resurfacing

During the resurfacing, a solid base was built up by motor patrol and compacted with the same tractor-roller unit. Surface material was windrowed and sprayed with a slow-curing liquid asphalt, then mixed and spread by motor patrol. The final compaction operation shown here attained a compaction equivalent to a week's normal traffic use.

With ballast removed, the unit becomes an over-the-road outfit.

Allis-Chalmers D-17 utility tractor with 10-ton roller doing street work on Kern County, Calif.

Chevy power is tough—

and proves it on bruising off-the-road hauls!

That Series 100 Chevy tandem above takes a terrific pounding as it hauls huge loads of gravel or fill dirt into the heart of California's redwood country. It goes miles off the road, makes up to 24 trips a day through rocky forest land. Yet owner Bernard Conti, of the Conti Sand & Gravel Company, reports only one hour of downtime in 20,000 miles on this truck-killing road construction job. And Chevy's tough power gets the truck through faster, Mr. Conti says; assures more trips—more profits—per day!

Hauling outsized loads of fill dirt through California's forests calls for a heavy-duty truck that's rock-rugged and powerful as they come; one that's soundly built down to the last bolt. And the Conti Sand & Gravel Company bears witness to the fact that Chevrolet is just such a truck. They're completely satisfied with their Series 100 model, from the dependable pulling power of the big 230-h.p. Workmaster V8 to the work-whipping qualities of the tough-built chassis components. And you'll be equally satisfied with whichever Chevy heavyweight or middleweight *your* work requires!

Mr. Conti indicates that Chevrolet's Powermatic* transmission is of special importance in this rugged service. It helps him to bull through the tough spots with exceptional ease. This fully automatic 6-speed transmission virtually eliminates manual gearshifting! It also provides a Hydraulic Retarder that helps you control truck speed and saves wear on the service brakes.

**Optional at extra cost, Series 50, 60, 70, 80, 90 and 100 models.*

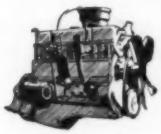
No job's too tough for a

Chevy's powered to cut costs and keep going on your tough off-the-road hauls!

That's for *sure*, whether you use mighty middleweights or high-capacity heavyweights—whether you prefer V8's or 6's.

Take Chevrolet's 1959 big-truck V8's, for example. As indicated by that tough truck job pictured above, these modern engines are out to whip any work that comes their way. They've got what it takes to do it. The *shortest piston stroke* of any comparable truck V8's: a sure sign of more work on less fuel. Compact design that cuts down on truck weight and helps assure the biggest possible payloads. Scores of up-to-the-minute features that know how to trim overhead: full-flow oil filter, hydraulic valve lifters, hard-faced exhaust valves and hardened valve seats, extreme-duty Moraine 400 bearings, rotor-controlled governor, overspeed warning light and many more.

And with a *complete* lineup of modern V8 powerplants —including 160-h.p. Trademaster, 160-h.p. HD Taskmaster, 175-h.p. HD Super Taskmaster, 185-h.p. Workmaster Special and 230-h.p. Workmaster—Chevy can match the engine to your work, ideally.



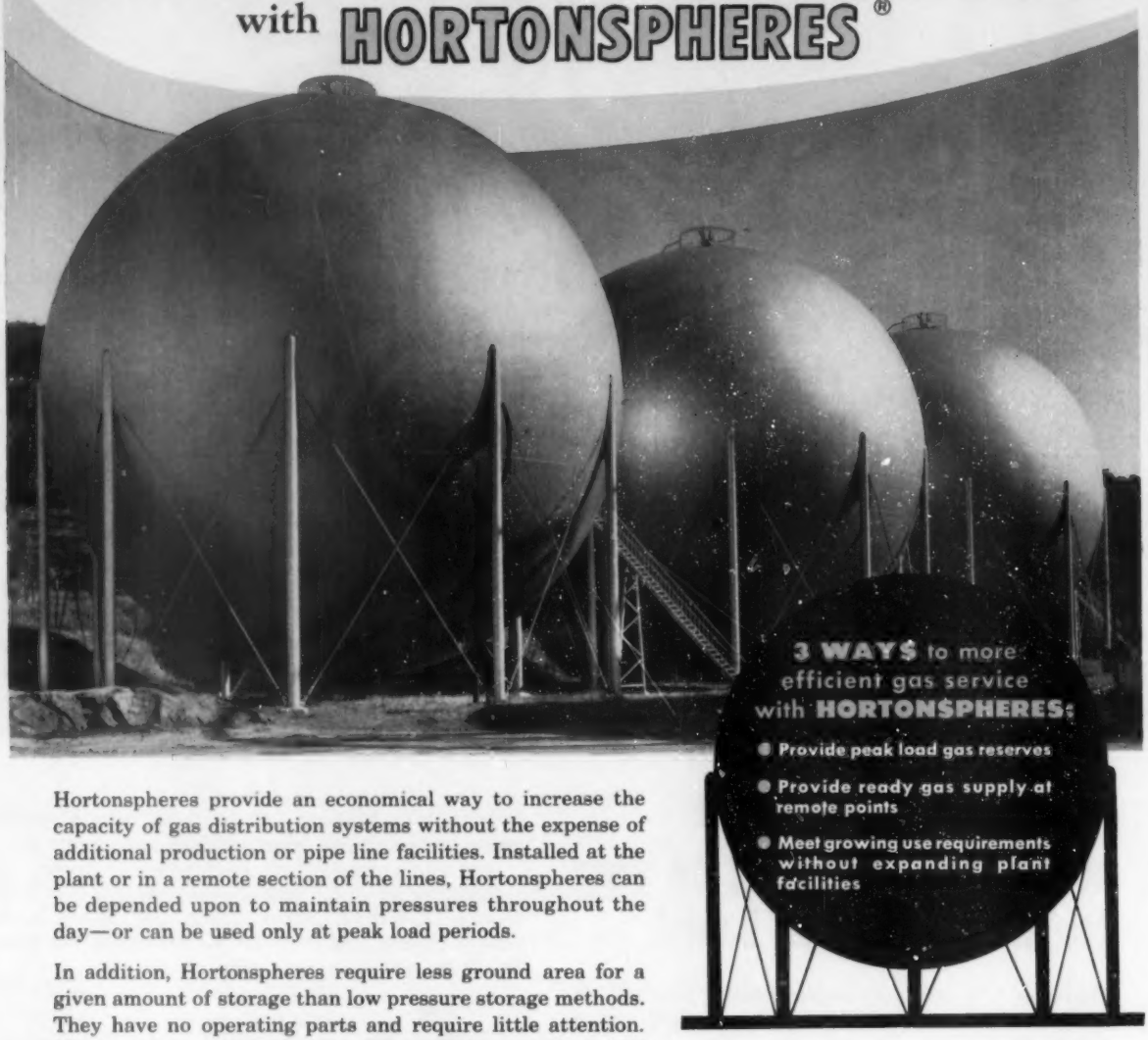
Or if you prefer 6's, Chevy's *still* your best bet. Standard in Series 40 models is the 135-h.p. Thriftmaster 6, better than ever for '59 with a new Economy-Contoured camshaft that improves gas economy by 10%! And in Series 60 there's a new edition of the 150-h.p. Jobmaster 6. It offers new durability stemming from new tougher built pistons and Stellite-faced exhaust valves. Both of these famous 6's provide plenty of hard-pulling torque.

Six or V8, you'll go a long way before you see the likes of this '59 Chevy engine lineup. Actually, there's only one *best place* to go for all your trucking needs —and that's to your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Chevrolet truck!

CHEVROLET

Smooth out Gas Supply Problems Efficiently, Economically with HORTONSPHERES®


3 WAY$ to more efficient gas service with HORTONSPHERES:
Provide peak load gas reserves
Provide ready gas supply at remote points
Meet growing use requirements without expanding plant facilities

Hortonspheres provide an economical way to increase the capacity of gas distribution systems without the expense of additional production or pipe line facilities. Installed at the plant or in a remote section of the lines, Hortonspheres can be depended upon to maintain pressures throughout the day—or can be used only at peak load periods.

In addition, Hortonspheres require less ground area for a given amount of storage than low pressure storage methods. They have no operating parts and require little attention. They present a pleasing appearance and the smooth, *welded steel* structure is easy to paint and maintain.

The Hortonsphere is *another* example of how CB&I's *craftsmanship in steel* is helping modern communities to meet their growth problems, gracefully . . . at a minimum of cost as compared to the efficiency delivered. Write your nearest CB&I office for further information.

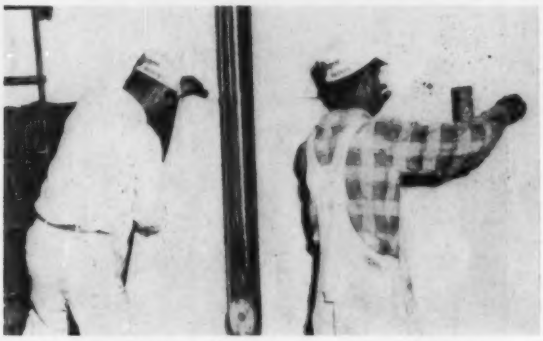
New, tougher steels with higher yield strength and continuing improvements by CB&I in design, testing, fabricating, and erection techniques and equipment have considerably extended the volume of gas that can now be stored at high pressure. Write for details.

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO

Three 76-ft. diameter Hortonspheres serve growing gas requirements at Meriden, Connecticut for the Connecticut Power and Light Company.

M-49C



To save a failing water tank, workmen laminated an epoxy resin material to the inside surface by first rolling on the plastic compound (left) and then placing a fiber glass cloth over it (right). The operation was repeated several times.

Plastic Coating Saves Old Water Tank

LINING a 36-year-old, 55,000-gallon elevated water tank with a plastic material saved the City of Lansing, Mich. the cost of a new tank. The tank serves as a reservoir for the water-softener system that conditions water for the boilers of certain city installations. Corrosive action over the years reduced the ¼-inch steel plate to ⅛ inch, approximately one-half of the original thickness. In addition, a 6-foot section of the tank where the water level fluctuates contained between 600 and 700 actual holes.

The city had the alternatives of replacing the tank with a new one at a cost of $50-60,000 or of finding some means of renovating and preserving the existing structure.

The city found a solution in the form of a plastic material manufactured by Ren Plastics, Inc., Lansing, Mich. This firm specializes in the production of epoxy resin compounds. As a result, a Lansing painting and sand-blasting contractor did the job under the supervision of Ren personnel.

The first step consisted of sand-blasting the entire tank interior. This left a rough finish upon which the plastic material could be laminated. The lining process, with the exception of the six-foot water line, consisted of first rolling on a coat of resilient plastic material followed by placing fiber glass cloth over the plastic. Then came a layer of non-resilient plastic material and another layer of glass cloth, followed by layers of non-resilient and resilient plastic material.

At the water-level area, two additional layers of glass cloth and layers of the non-resilient plastic were applied for more strength. In each application the glass cloth used was 44 inches wide and .013 inches thick.

These applications of plastic material and glass cloth actually produced a plastic tank within a steel tank. The plastic coating does not require the annual maintenance and patching previously necessary, and, in addition, the coating is guaranteed to remain operational without major attention for five years. Four workers completed the job in one week at a total cost to the city of about $5,500.

Cincinnati's Suburban Pumping Station

CINCINNATI'S (Ohio) enlarged Winton Road pumping station frequently confuses door-to-door peddlers, new mailmen and passersby who mistake it for a modern suburban home. The station recently has been enlarged to pump water to two areas if needed. One of these is customarily supplied by the Queen City station. This implements the dual-protection policy of the city's water works system.

The pumping station contains two Fairbanks-Morse pumps each able to deliver 5 mgd, and two Worthington pumps of double this capacity. Westinghouse electronic devices control the pumps, relaying all information to the central station by telephone lines. Automatic safety controls shut the pumps down in an emergency.

C. A. Bolton, superintendent, reports that the cost of such a building is roughly the same as that of a conventional pumping station.

This neat suburban cottage is actually a water pumping station rated at 30 mgd.

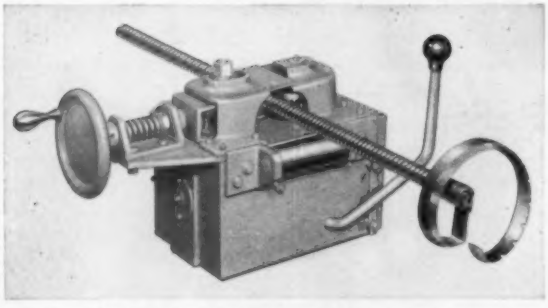
JOB TEST AND COMPARE AN O'Brien Sewerking® —with your present method...

- **FOR SIMPLICITY**—Every SEWERKING is a complete, ALL-IN-ONE machine. Operating parts, engine, clutch, OB Power Transmission and cable drum work in conjunction with each other, just like a car. Nothing to connect or disconnect, except cutting tools to end of cable. Roll the SEWERKING to the manhole—start the engine, throw in the clutch and the transmission feeds the cable into the sewer at high speed, revolves it to cut away the stoppage. Shift to reverse and the cable is rewound in the drum. A smooth, continuous ALL-POWER operation that is unexcelled for simplicity!

- **FOR LOWER COST**—Only one man is needed to operate the OB Power Transmission. "Forward," "Reverse" or "Neutral," as desired, at a simple shift of the transmission lever. No manual labor—the cable and cutter do the work, all by power! And no extra men in the crew to join rods, hook up reels, etc. SEWERKING users report they *complete a job* while they would otherwise just be setting up with former machines and methods. You can expect big savings in labor with one-man control. And in job time, because of SEWERKING'S all-power operation with a completely self-contained machine.

- **FOR EFFICIENCY**—which comes from the smooth, powerful operation of the SEWERKING itself, and the effective way it cuts away the stoppage. SEWERKING pioneered and perfected the use of heavy, flexible steel cable as the best way to carry the cutter to the obstruction, eliminating rod breakage and controlling torque for better safety. By means of interchangeable cutters and tools in different sizes and types, SEWERKINGS *cut away whatever the stoppage.* With a SEWERKING and its power propelled cable always working forward, you will clean faster, better—reaching from manhole to manhole to get a free flowing sewer.

—and every SEWERKING features the exclusive



• OB POWER TRANSMISSION (showing cable with cutter at end)

OB POWER TRANSMISSION

Truly an engineering achievement, which makes possible the precision drive of heavy, flexible steel cable. The cable is taken off the storage drum, gripped and locked between two gears which match the thread of the coiled cable. All the operator does is move the vertical shift lever—"forward," "reverse" or "neutral." The transmission does the rest to move the cable as desired. Each model SEWERKING has its own OB Power Transmission especially designed to fit its requirements. The OB Power Transmission has proved its great efficiency to hundreds of satisfied users.

O'Brien MANUFACTURING CORPORATION
5632 Northwest Highway • Chicago 46, Ill.
Phone ROdney 3-7433

NATIONWIDE SALES AND SERVICE

O'BRIEN MANUFACTURING CORPORATION
5632 Northwest Highway • Chicago 46, Ill. DATE_____

OK—O'BRIEN... send us the facts and the SEWERKING CATALOG.

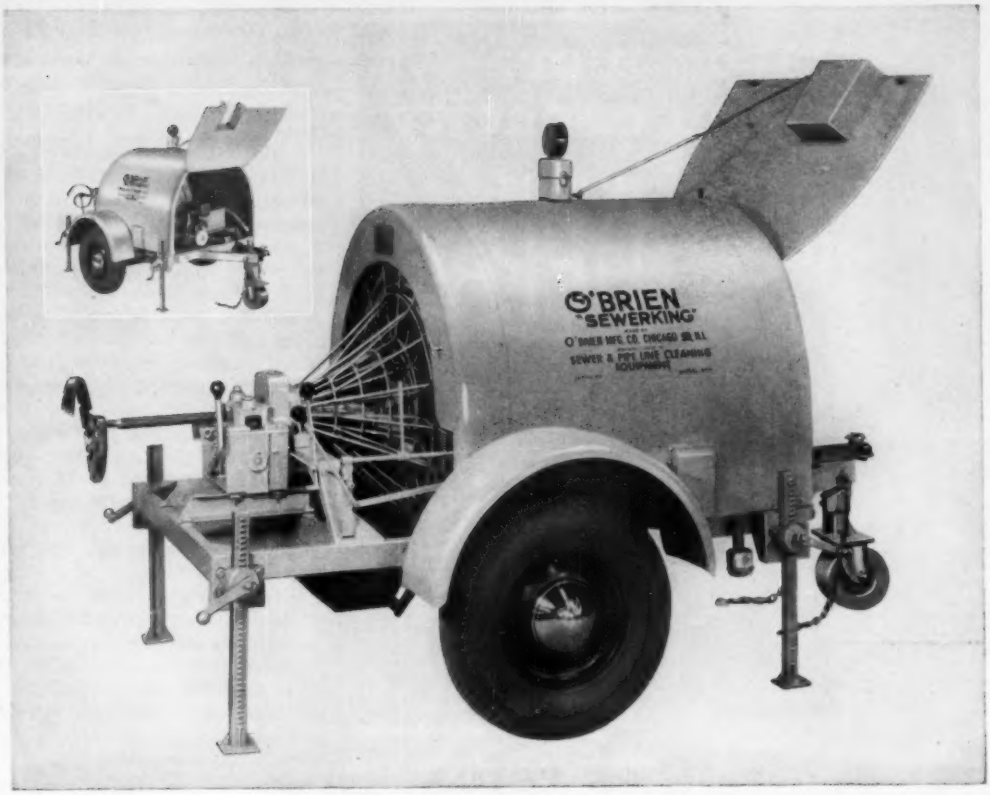
CITY_____ STATE_____

STREET_____

SIGNED BY_____

TITLE_____ DEPT._____

AC-459



THERE'S AN O'BRIEN SEWERKING TO FIT YOUR NEEDS!

THE MODEL "800" *(Above)*

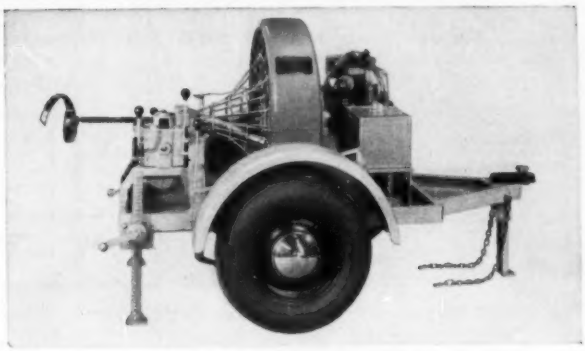
Handles up to 500' of 1¼" O'BRIEN steel cable. Cable may be revolved clockwise or counterclockwise. Useful for stringing buckets. Heavy duty OB Power Transmission with automatic safety overload release. Footage counter. 9 HP gasoline engine (Electric Starter available). Variable speed mechanism. Heavy gauge all-steel body, safety signal light, 4 corner levelling jacks, rear chassis wheel. 6.70x15 pneumatic tires. Trailer hitch. Large steel tool boxes. Assorted cutters and job tools. Deluxe enamel finish over rustproof primer cost.

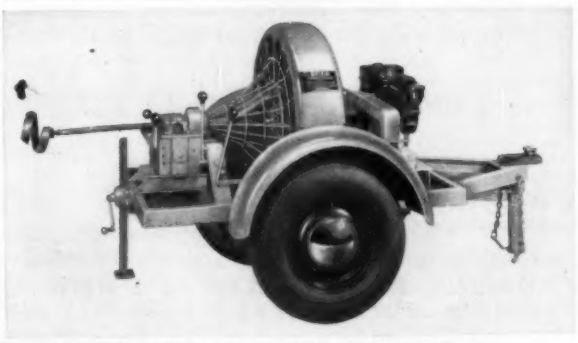
THE MODEL "350" *(At right)*

Handles up to 400' of 1" O"BRIEN steel cable. Heavy duty OB Power Transmission with automatic safety overload release. 6 HP gasoline engine (Electric Starter available). Footage indicator available. Variable speed mechanism. Steel girder chassis, space for extra tools and guides, 2 front levelling jacks. Trailer hitch. Large steel weatherproof tool box. 6.70x15 pneumatic tires. Assorted cutters and job tools. Deluxe enamel finish over rustproof primer coat.

THE MODEL "250" *(Below)*

Handles up to 300' of 1" O'BRIEN steel cable. Exclusive OB Power Transmission. Sturdy gasoline engine or electric motor. Variable speed mechanism. Heavy steel girder chassis, trailer hitch, front levelling jack. Large waterproof tool box, open space for guides and extra tools. 6.70x15 pneumatic tires. Assorted cutters and job tools. Deluxe enamel finish over rustproof primer coat.





ALL SEWERKINGS ARE BUILT TO "TAKE IT" UNDER THE MOST RIGOROUS CONDITIONS

Job test and compare an O'BRIEN SEWERKING
***—the original automatic cable sewer cleaner,* TESTED — PROVEN!**

. . . than with other refuse packers of comparable cost!

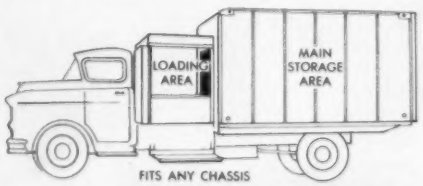
Put your garbage collection operation on a simplified, money-saving basis with Hobbs Hydepak, the refuse packer which gives you *three yards more capacity*—yet less body weight—than similar bodies of comparable cost!

LOOK AT THIS COMPARISON:*	Hobbs Hydepak Model 1619	Body G	Body P
Body Volume, cu. yds.	16.2	12.7	12.9
Empty Weight, lbs. (including weight of trucks)	12,180	13,740	12,280

*Measurements by an independent testing laboratory for a major Southwestern city.

Volume, as measured above, is body space into which refuse can be *completely compressed* and does not include the three-yard loading compartment at the front (see drawing). When you buy a refuse collection body of a given capacity make sure how much of the total volume is really *compressible* volume, and how much is in the loading hopper, where only partial compression is possible.
There's a big difference!

Available in 13, 16, 20 and 24 cu. yd. capacities (not including 3-yard loading compartment).



HYDEPAK is a division of HOBBS TRAILERS leading manufacturer of truck-trailers and bodies

For full information, write to Hydepak Div., Hobbs Trailers, 609 No. Main, Fort Worth

FOR MORE CAPACITY PER TRIP, GET HOBBS HYDEPAK

(Continued from page 7)

not too much draft to spare under certain conditions, this statement alone warrants a pilgrimage to this plant.

I also note with wonder the picture on page 102, showing the emergence of what I take to be the hot residue from the interior of the furnace. The photograph also shows two water sprays whose function it is to quench these hot ashes. In most other designs, including ours, quenching takes place within a closed chamber, yet we still are occasionally plagued by the emergence of water vapor and fumes from the quenching operation. In this plant all this takes place in the open, and the atmosphere is so clean that you can actually count the rivets on the steel shell. It may be that this photograph was taken of a dead furnace.

I really believe that the report of results and performance, as well as the plant cost, are so unusual as to warrant a somewhat more thorough investigation on the part of the Editorial Staff of your esteemed publication than appears to have taken place thus far.

JOSEPH I. FRANKEL
West Hempstead, N. Y.

See Post Office In House Numbering

The Sumter County Board of Commissioners authorized houses to be numbered in areas adjacent to the City of Sumter, S. C.

But—before the Post Office Department could get house to house service started, the people dropped their R.F.D. mailing address and began informing their correspondents of their street and house number, causing a pile-up of "difficult" mail to be delivered.

Moral: As house numbers are assigned and placed, inform resident addressee that his mail will continue under the R.F.D. system until otherwise notified by the Post Office Department.

R. T. BROWN, *Clerk*
Sumter County Board of Commissioners

Highway Capacity

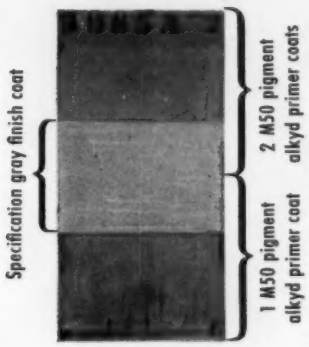
I certainly appreciate your having listed the Bibliography of *The Economic Effects of Limited Access Highways and Bypasses* in the December issue of THE AMERICAN CITY, p. 175. Requests generated by this

Area shaded from sun by wooden panel holder

After 9 years exposure, fading has barely begun to show in this 3-mil *M50* primer coat. Same type paint made with standard rust inhibiting pigment chalked and showed rusting in less than half this time.

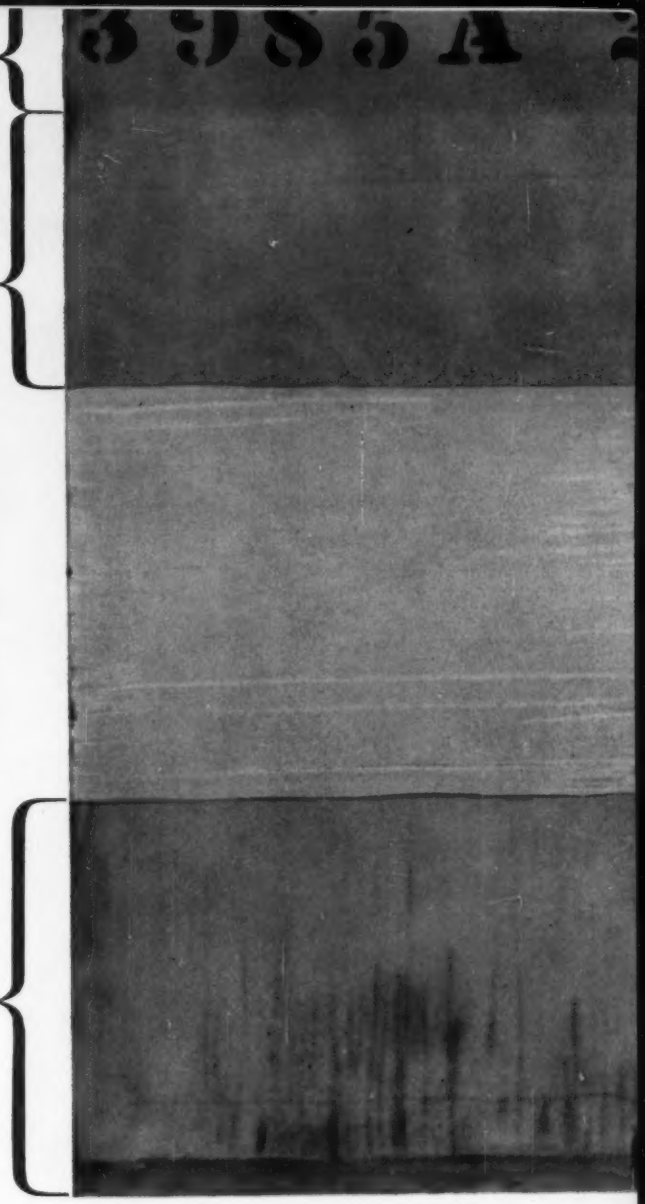
Unshaded area

How test paints shown at right were applied



Exposed 9 years 45°S
Each coat 1.5 mils

1.5 mil *M50* primer coat is still in place, still actively resisting corrosion after 9 years. Same type paint made with conventional pigment almost completely disappeared in the same period.



Proof M50 pigment Defense in Depth paints deliver lasting weather resistance

Never before such durable metal protection for highway bridges, guard posts, railings, sign posts. And never before such attractive color choices.

Here you see how typical M50 pigment primer coats weather 9 years exposure. The advantages of weather resistance like this in the primer coat of an anti-corrosive paint system cannot be overstressed. Long after weather has worked its way through intermediate and finish coats, primers made with *M50* basic lead silico chromate pigment* still provide excellent weather protection. Rust inhibiting action in the film continues unchecked. Even breaks in top coats traceable to damage or painting mishaps do little harm.

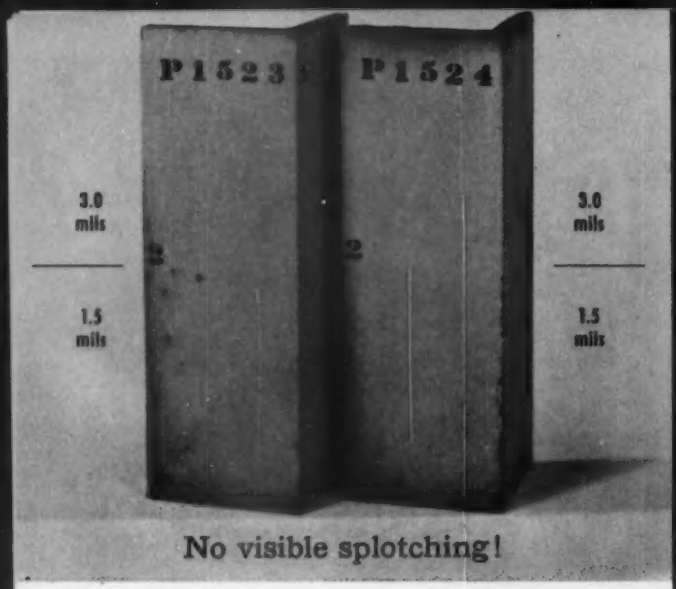
The excellent chalk resistance shown by *M50* pigment primers also pays off handsomely. When steel erection is delayed, repreparation of the steel is rarely needed. On-the-job spot priming is sharply reduced.

On the next page, see how typical *M50 finish* paints perform in severe exposure tests.

*Registered trademark of

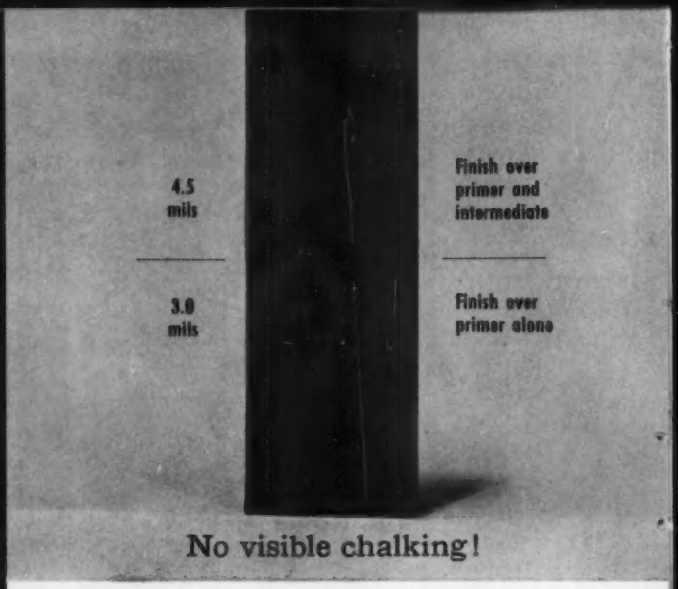
National Lead Company

General Offices: 111 Broadway, New York 6, N.Y.



No visible splotching!

Test angles above show how a typical *M50* pigment finish paint applied directly to steel (no primer or intermediate) withstands 4 years exposure in industrial atmospheres. Left, *M50* pigment finish applied on rusted surface with retained mill scale. Right, same paint applied on clean, sand-blasted surface.



No visible chalking!

This test angle demonstrates the excellent resistance to chalking or fading shown by *M50* pigment Defense in Depth paints. Paint has been exposed 2 years, 45°S in normal atmosphere. The insolubility and stability of *M50* fused lead chromate pigment contributes substantially to this performance.

Here are two performance plusses you can expect from M50 anti-corrosive finish paints exposed to weather

With *M50** pigment Defense in Depth paints, *lasting* weather resistance is obtained in *all* coats . . . not just intermediates and finishes. This is clearly brought out by exposure tests such as the ones shown on this and the preceding page.

Along with lasting 3-deep weather resistance, *M50* pigment anti-corrosive paint systems give you 3-deep rust inhibition and 3-deep color choice. Never before has it been possible to produce specification anti-corrosive paints with comparable performances that could be sold at current market levels.

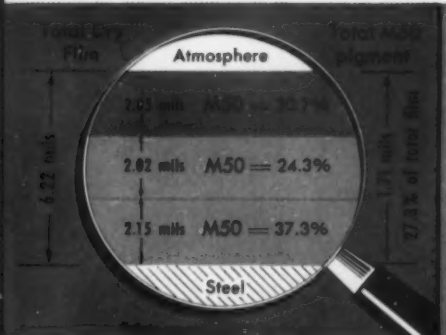
Now, with National Lead's *M50* pigment, most paint makers can make such paints.

National Lead is prepared to help your supplier formulate *M50* pigment paints and also: (1) show you *M50* pigment paint exposure test panels at its Sayville, L. I. Test Station; (2) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (3) provide technical aid in test applications; (4) help you develop suitable specifications for paints containing *M50* pigment.

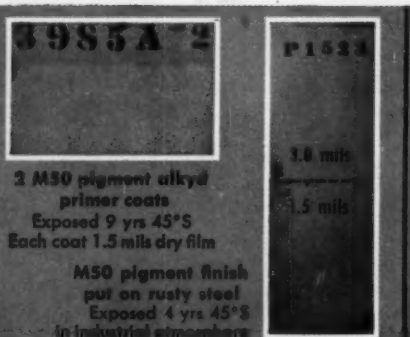
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

Why M50 Defense in Depth paints give you metal protection beyond all former concepts



In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.


2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film
M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S
P1523
3.0 mils
1.5 mils

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.

In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

Name_____ Title_____

Firm or Dept_____

Address_____

City_____ State_____

listing have exhausted our supply of the pamphlet and no further printing is planned. It is requested that no future listing be made.

J. W. HARRISON
Highway Research Economist
Council of Highway
Investigation and Research
Charlottesville, Va.

Master-Controlled Signals

Many changes are continually being made in traffic control devices, such as traffic signals, signs and pavement markings.

Generally, I would say that there is a trend in traffic signals toward greater use of Central Traffic Control Systems or Master Control Systems; this is particularly in the medium and large sized cities. Systems of this type utilize sampling points where traffic volumes are measured. The information is then transmitted to a central computer and analyzed there; changes in signaling are then dispatched to the signal system. Within this field there is definitely a trend toward the use of radio for the transmission of the signal supervision information.

We, here in Denver, are very much interested in building additional master control systems and we intend to use radio, if at all possible, to circumvent the cost of laying interconnecting cable. Traffic actuated signal equipment in its various forms will also be utilized to a large degree within the master control area. I believe that traffic actuated signal controllers of various types are being more widely used.

I have noted constant investigation of plastic materials and their greater use in the field of pavement markings. We are all seeking the most permanent pavement marking we can obtain in order to cut down maintenance cost.

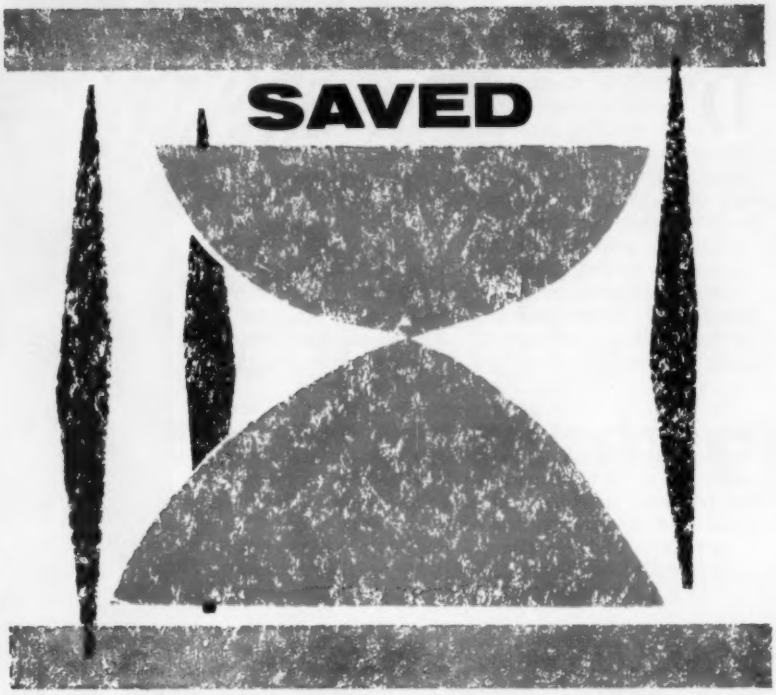
JOHN A. BRUCE
Traffic Engineer
City of Denver, Colo.

Gas Lights for Pensacola?

The City Manager recommended to the City Council that gas lights be tried in a new subdivision and metered so that the expenses of the gas lights for street lighting could be compared with the electric lights in other subdivisions. However, the Council took no immediate action on it and nothing has been done up to this point.

PAUL T. MATTHES
City Engineer
Pensacola, Fla.

TABULATING TIME



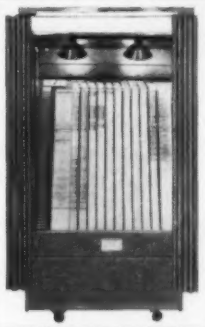
for better elections

With the Shoup Voting Machine, the procedure of tabulation and coordinating results is so simple that returns from whole cities can be published within an hour or two after the polls close. This is because only the Shoup Voting Machine provides instantaneous results by candidates' names directly on the face of the machine.

In Orlando, Florida, for example, returns that previously took 2½ days for clerks and inspectors to tabulate were in the registration office within 2 hours. And other communities have had equally impressive experiences.

Obviously this represents substantial savings in time spent by election officials. It also facilitates the work of newspapers, radio-TV, and other parties interested in election outcomes in getting the results to the public.

Shoup Voting Machines are designed to fill every ballot requirement and comply with the election laws of all states. They are the only voting machines that duplicate the traditional vertical paper ballot with which voters are familiar. They are fool-proof and fraud-proof, reduce voting costs, and insure greater speed and accuracy of results. Impartial surveys prove the Shoup Voting Machine superior . . . more perfectly designed and constructed to meet the requirements of the voting public. That's why more and more communities, from the smallest to the largest, are using Shoup Voting Machines for better elections.

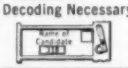


The ABC's of Superiority...

A. THE VERTICAL TYPE BALLOT (see illustration)

B. THE MOVING X MARK – Visual Proof of Selection – Guards Against Voter Error

C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME Directly on the Face of the Machine No Decoding Necessary



28 States Already Use Shoup Voting Machines

SHOUP

THE SHOUP VOTING MACHINE CORPORATION

EXECUTIVE OFFICES: 41 E. 42nd St., New York 17, N.Y. • SALES OFFICES: 1701 West End Ave., Nashville 3, Tenn.

the voting machine that looks like a ballot

Parks & Recreation

Denver, Colo. Hides Vacuum Breakers with Park Sign

DENVER'S Revised Building Code includes a provision concerning back-siphoning of sprinkler systems into potable water supply lines. This provision stipulates that backflow preventers or vacuum breakers be installed wherever the outlet end of the supply line may at times be submerged, such as a hose or spray. This meant that such protection be provided at the meter for every park sprinkling system. Vacuum breakers were installed wherever possible to avoid the expense of backflow preventers. These were required to be set on a loop in the main line at least 3 inches above the highest point of ground in the park. In many instances this meant extending pipes 5 to 6 feet into the air.

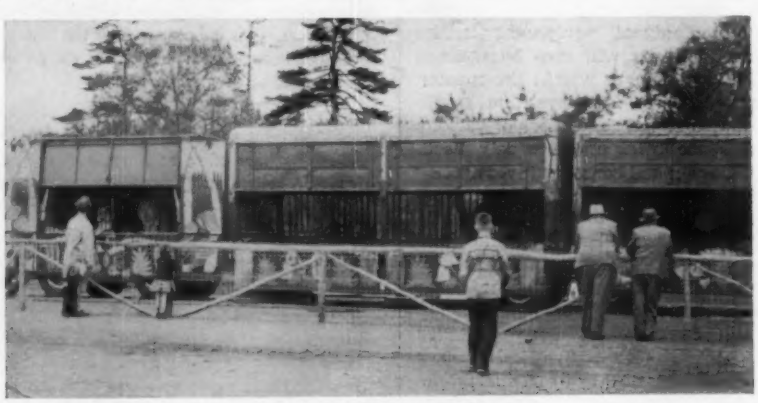
To make the best of a rather bad situation, the Department of Parks and Recreation designed and built park signs using the pipes as supports. These signs are made of three 2- x 12-inch redwood planks, 4½ feet long, mortised and held together with ⅜-inch rods running through the width of the sign. The park's name and the slogan, "For More Enjoyment," have 7-inch and 3-inch letters respectively, routed out and filled with light-green paint. Two signs, back to back, are held together by a 1- x 10-inch redwood shadow-box frame, removable by lifting off, in the event of vacuum breaker trouble.

Denver's Park and Recreation Department has installed the signs in 20 parks, at a unit cost of $50.

A sign transforms a vacuum breaker and conceals its use.

Pawtucket, R. I. Builds Itself a Zoo

By L. A. McCARTHY
Mayor
Pawtucket, R. I.



The animals and circus wagons leased to the city by Ringling will spend the winter in a newly constructed house.

IF TWO YEARS ago anyone had prophesied that Pawtucket, R. I. would soon not only have a new zoo but also be host to the Ringling Brothers, Barnum & Bailey Circus menagerie for 11 months of the year—no one would have believed it.

It all began in November 1956 when some teen-age boys cut a hole in the wire fence of the deer run in Pawtucket's Slater Park. As a result, 13 deer escaped, and before they were recovered three were killed.

We saw in this mischief of the boys an opportunity and a need for a new zoo. To start the project, we asked the public for suggestions and promised a new animal house for the zoo if there were enough response. The public's response was immediate and enthusiastic, and suggestions came pouring in from all directions. While the public's enthusiasm was still high the Council acted to have plans drawn up for a new animal house.

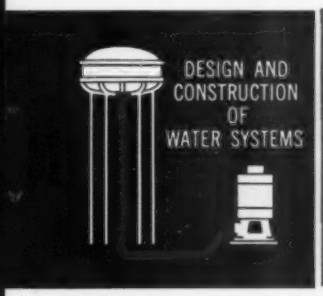
At the same time Public Works Director Joseph A. Keith began acquiring animals for the new house. By trading in several deer, he was able to obtain a lion, a leopard, an Arctic wolf, a baboon, two aoudads and some monkeys. He then launched a campaign among

(Continued on page 176)

Layne

the only complete water service organization

Complete service means undivided responsibility



In an age of specialization there is a definite advantage in doing business with a company offering a COMPLETE SERVICE . . . providing *all* the services allied to the field of water.

Only Layne with its network of Associate Companies, and over 75 years of experience, all backed by Layne Research can offer its customers a complete water service which makes Layne unique in the industry.

World's Largest Layne *Water Developers*

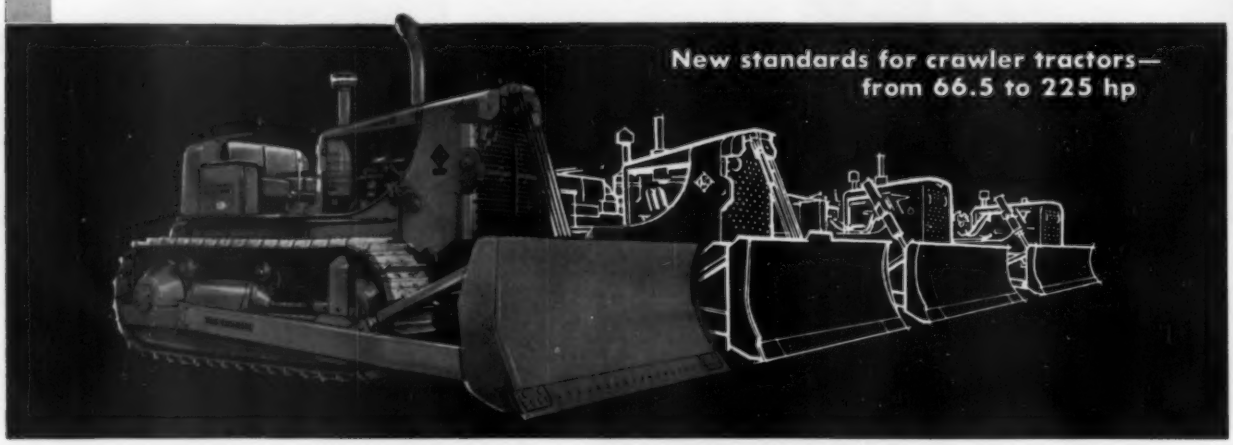
LAYNE & BOWLER, INC., MEMPHIS

Offices and Factory • Memphis 8, Tenn.

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

How to get more tractor for your dollar

Advantage	What it means to you
All-steel main frames	Power train protection Better equipment mounting Better weight distribution
Permanent lubrication of truck wheels, idlers and support rollers	No more wasted time greasing these track components
Torque converter drive	Matches power to load automatically Transmits power smoothly Less shifting
Double reduction final drives	More clearance Longer gear life
True unit construction	Faster service Easier access to all major assemblies



move ahead with ALLIS-CHALMERS.

In the chart below are five important crawler tractor advantages. These features have earned recognition by all makers of crawler tractors—one or more are now included in their latest designs. It stands to reason that the more of them you get on your next crawler, the more it is worth to you.

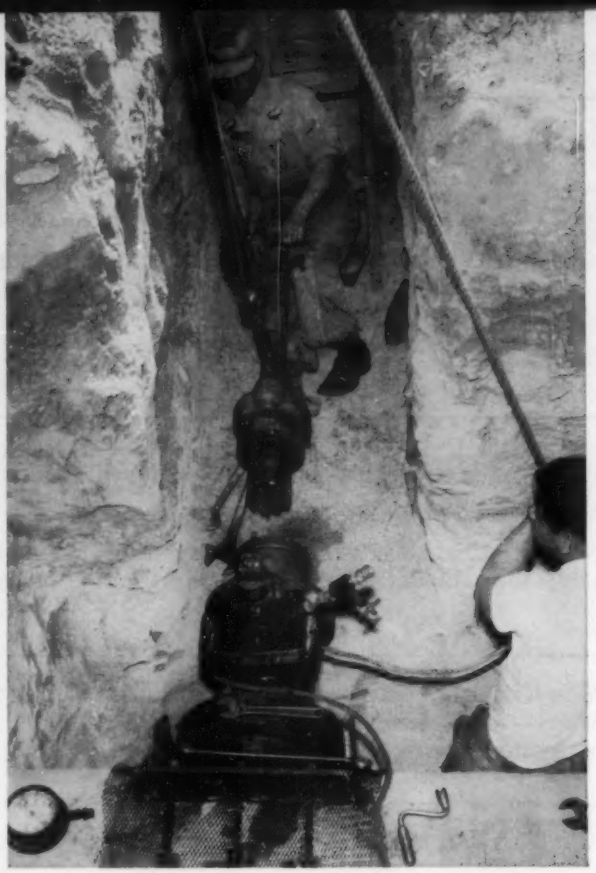
Where you get it
Allis-Chalmers is the only manufacturer offering main frames in *all* models. Two other manufacturers now offer them in one model.
Allis-Chalmers is the only manufacturer offering permanent lubrication of truck wheels, idlers and support rollers on *all* models. One other manufacturer offers permanent lubrication on three models.
Allis-Chalmers pioneered it in crawler tractors in 1940 . . . offers it in two tractor shovel models, two tractor models. All other major manufacturers now offer it as optional equipment in one or more models.
Allis-Chalmers is the only manufacturer offering double reduction final drives on *all* models. One other manufacturer offers it on three models.
Allis-Chalmers is the only manufacturer offering true unit construction in *all* its models. Two other manufacturers now offer modified unit construction in part of their lines.

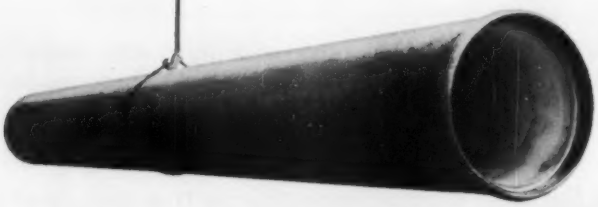
Here's proof that other manufacturers of crawler tractors have chosen to "follow the leader" with Allis-Chalmers engineering . . . and that your Allis-Chalmers dealer is the man to see for top value in crawler tractors. He'll be glad to demonstrate the model of your choice. It will have more industry-approved advantages than any other unit near its size. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

. . power for a growing world

Tapping Water Lines Under Pressure

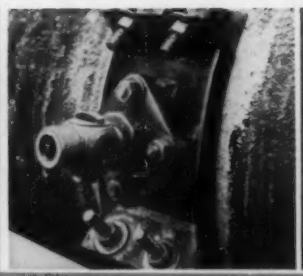
American Concrete Cylinder Pipe can be tapped with ease and economy while still under pressure.





The sudden explosive growth of many communities in the west has made it difficult for the best of advance planners to achieve both economy and adequate service in water supply systems designed for the future.

The possibility of unpredictable requirements for service outlets was one of the factors taken into consideration in the design of American Concrete Cylinder Pipe. Without de-watering the pipeline, small or large diameter outlets can be easily installed by any water works service group using standard tapping equipment. New outlying areas which mushroom in the typical western growth pattern can be readily integrated into a planned system if American Concrete Cylinder Pipe is used for the transmission lines.

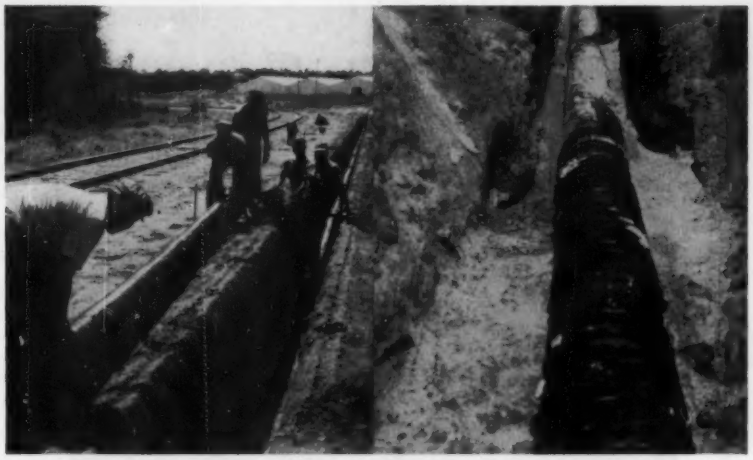


American PIPE AND CONSTRUCTION CO.

LOS ANGELES: 4635 Firestone Blvd., South Gate, Calif. LOrain 4-2511
HAYWARD: P.O. Box 630—JEfferson 7-2072
SAN DIEGO: P.O. Box 13—CYpress 6-6166
PHOENIX: American Concrete Pipe Co. (Subsidiary) P. O. Box 12127—ALpine 2-7566
PORTLAND: 518 N. E. Columbia Blvd.—BUtler 5-2531
ALBUQUERQUE: P.O. Box 1782—CHapel 7-0486

CONCRETE PIPE FOR MAIN WATER SUPPLY LINES, STORM AND SANITARY SEWERS, SUBAQUEOUS LINES

$3,500 Ahead On Sanitary Sewer Construction



City Sanitary Department employees (left) laid the 500-foot line in two days; line is only 12 feet from the railroad spur. Armco asbestos-bonded pipe (right) was chosen, partly because of unstable soil conditions throughout area.

SAVING $3,500 on a 500-foot sanitary sewer doesn't happen often in the municipal world. Yet we made this saving with no sacrifice of durability or structural strength, and ease of installation, obtained by simply choosing the proper material for the job, was an added benefit.

The City of Americus, Georgia, needed a 500-foot sanitary sewer. The fact that part of the line had to cross a swampy area where poor foundation conditions existed complicated the job. Structural strength sufficient to withstand railroad loadings was essential since the sewer paralleled a railroad spur track at a distance of 12 feet. The ability to withstand both erosion and corrosion was another prime requisite.

We considered using rigid pipe, but this type is inherently heavy and would have required the use of a cradle or concrete piers to support each short section of pipe. In addition, difficulty might have been experienced in handling the heavy pipe in the swampy area.

We chose Armco Asbestos-Bonded Paved-Invert Pipe because it provided the necessary structural strength without being heavy and unwieldy. The lighter weight of the corrugated-metal pipe eliminated the need for concrete piers. Asbestos bonding, asphalt coating and paving insure many years of service.

Two men easily carried the 20-foot sections of pipe and no heavy equipment was necessary to install it. Laying the entire 500-foot length of sewer line took only two days. Backfill consisted of a sandy material found on the job. Comparative figures show a saving of $3,500 on the installation of this line.

The writer designed the sewer line and employees of the City Sanitary Department handled construction.

J. B. LOVELL
City Engineer, Americus, Ga.

New Use for Old Toy

WORKMEN for the Dravo Corporation turned to the little red wagon for help in getting back and forth efficiently inside a 48-inch-diameter concrete pipe. The pipeline is part of a 10-mile stretch of tunnel Dravo is completing for the Allegheny County Sanitary Authority sewage-disposal system serving the Pittsburgh area. Clean-up crews used the wagons to carry material and tools in the restricted passageway.

This little red wagon helped workmen get back and forth inside 48-inch concrete pipe. Time was too short to justify installation of tracks and mine cars.

Mighty Mack Thermodyne ENF-707C develops a fully usable 276 hp at 2600 rpm. Smaller Mack engines range upwards to 200 hp.

MACK ENGINE FEATURES THAT ADD UP TO SUPERLATIVE PERFORMANCE

Modern, overhead-valve design for greatest efficiency · combustion chamber and manifold design that gives optimum fuel mixture for most complete combustion and fastest starts · heavy-duty, *seven*-bearing crankshaft with 4″ diameter main bearings —largest in the industry—electrically hardened for surface hardness with interior toughness · valve lifters faced with tungsten carbide to render them immune to wear and assure long cam and lifter life · full-length water jackets, plus directed water flow, to promote uniform cylinder temperature and more efficient lubrication · angle-split connecting rod bearing caps to permit largest bearings and easier maintenance.

MACK ENGINES — Packed with power and performance

Heart of Mack fire apparatus performance is the famous Mack Thermodyne® engine—crafted to the industry's highest standards . . . tested through every stage of manufacture . . . designed for every fire-fighting need. Such is the efficiency of Mack engines that they outclass engines even of greater comparable rating . . . in both road and pumping performance.

Mack engines are made to work in harmony with all other Mack quality components—clutches, transmissions, front and rear axles, and cabs. Remember, Mack controls the performance of its finished product by making more of its own components than any other manufacturer and to higher standards. *You can depend on a Mack.* Mack Fire Apparatus, Sidney, Ohio. In Canada: Mack Trucks of Canada, Ltd.

Apparatus as you want it. From the wide selection of Mack models you can have cab-forward or standard units . . . with conventional or automatic transmissions . . . with standard, two-stage pump or the new Uni-Control Hi-Stage pump . . . with air or hydraulic braking systems . . . with the gear ratios and built-in extras that you need.

MACK
FIRST NAME FOR
FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65′ to 100′ . . . COMBINATION LADDER TRUCKS

Extra Aid Needed

LAST March, Fire Chief Lindsay of Teaneck, N. J. requested me to have an emblem made for him that could be placed on the doors and windows of homes where the disabled or blind lived. This marker, made with fluorescent paint, will stand out and quickly notify firemen when they roll up to such a home that there is someone within who needs assistance in getting out.

Public Interest

This plan, although not new in some sections of the country, was new in our area and it received a good deal of publicity. It created a great amount of interest and was quickly adopted by several firemen's associations. To date, 54 municipalities in New Jersey are using these emblems, besides many others throughout the country.

ED CHARNEY
F D Products
Teaneck, N. J.

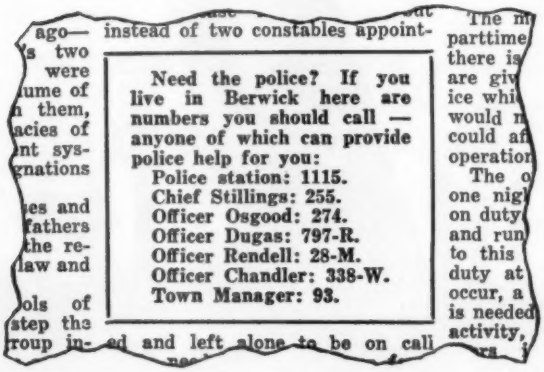
Berwick's Volunteer Police

By PAUL J. FLYNN
Town Manager
Berwick, Me.

LAW ENFORCEMENT in Berwick, Me., was originally the responsibility of one constable at $200 a year. Ten years ago, when the town's population was 2,100, a second constable was appointed. When the population reached 2,500 and the neighboring communities grew proportionately, enforcement duties mounted to such a volume that the two part-time constables resigned early in 1957.

Should a full-time officer be hired? Selectman Walter Osgood suggested a volunteer force of five officers screened for their competence. The suggestion was accepted and Selectman Osgood is one of the officers. The chief is Richard Stillings, a native of Berwick, a graduate of the University of Maine, and an insurance agent. He served with the constabulary forces in Europe and with the infantry in Korea.

A room in the basement of the city hall is the Police Department Headquarters, with a cell alongside it. Two-hour training sessions are held each week. Each officer is on duty one night a week from 6 p.m. to 3 a.m. and all the officers are on call any time. Their duties in order of number of calls are speeding, inspection of buildings, house calls, and disturbances. The annual budget for this organization is $1,400. It is estimated that a full-time force would cost $14,000.


ago— instead of two constables appoint- ... The m... parttime ... there is ... are giv... ice whi... would r... could af... operation ... The o... one nig... on duty ... and run... to this ... duty at ... occur, a ... is needed ... activity, ...
ed and left alone to be on call ...

Need the police? If you live in Berwick here are numbers you should call — anyone of which can provide police help for you:
Police station: 1115.
Chief Stillings: 255.
Officer Osgood: 274.
Officer Dugas: 797-R.
Officer Rendell: 28-M.
Officer Chandler: 338-W.
Town Manager: 93.

Berwick's newspaper tells how to reach the volunteer police.

The Policewoman In Family Problems

PHILADELPHIA Policewoman Lt. Alice Clifford, last fall, in Miami became the first woman to address a session of the convention of the International Association of Chiefs of Police.

In speaking on "The Policewoman in Family Problems," Lt. Clifford said that crime prevention by women officers "now stands as possibly the sole hope of law enforcement in stopping the steady march of crime, particularly among teenagers and young adults. Most often, the policewoman enters into the life of a family because of missing persons or runaways, broken homes, or neglected or abandoned children.

"Neglected children are unhappy children, and they can become dangerous children. We all have had that overworked generalization 'juvenile delinquency' rammed down our throats. Too many social problems become police matters when a parent refuses to fulfill his duty."

THIS IS THE IMAGE OF CF&I...

maker of steel products for every industry

Automotive Wire Products • Baling Wire and Ties • Barbed Wire • Belts—Woven Wire Processing • Bridge Products Chemicals and Coke • Door Hardware (Garage, Overhead, Sliding, Fire Door) • Electrical Wire and Cable • Fabricated Steel Plate Products • Fence, Chain Link, V-Mesh, Woven Wire, Ornamental • Fence Posts • Fence Stays • Flower Bed Border • Gates • Galvanized Steel Strand • General Purpose Welded Wire Fabric • Grader Blades and other Cutting Edges • Grinding Balls • Grinding Rods • Grizzly Bars • Hardware Cloth • Industrial Wire Cloth • Insect Wire Screening Mine Rails and Accessories • Nails, Staples and Spikes • Nettings—Poultry, Stucco, Fish Trap • Overhead Conveyor Systems • Pig Iron • Pipe—API Large Diameter • Rails and Accessories, Standard • Reinforcing Bars and Tie Wire Rock Bolts and Metallic Fabric • Screen, Woven Wire, Industrial, Space, Vibrating • Seamless API Casing and Tubing Semi-Finished and Hot Rolled Carbon Steel • Springs and Formed Wire • Spun and Pressed Heads and Fittings • Steel Plates—Carbon, Alloy, Stainless-Clad, Nickel Plated • Strand and Wire—Prestressed Concrete • Welded Steel Plate Girders Welded Wire Reinforcing Fabric • Wire (All Types) • Wire Rope • Wire Rope Slings • Wire Rods

THE COLORADO FUEL AND IRON CORPORATION

DENVER • OAKLAND • NEW YORK

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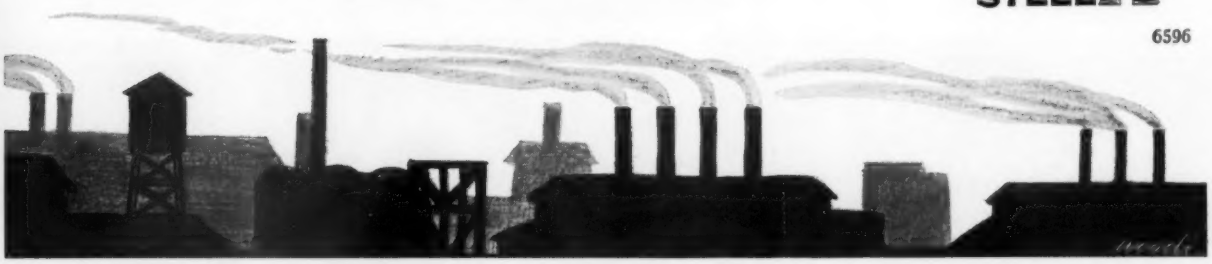

RIGID PLASTIC PIPE made of

CYCOLAC®

THE TOUGH, HARD ABS PLASTIC
from BORG-WARNER

OUT-PERFORMS CONVENTIONAL PIPE IN VITAL MUNICIPAL INSTALLATIONS!

Ideal for main-to-house water lines • Underground sprinkler systems • Domestic gas • Electrical conduit • N.S.F. approved

This is America's truly *versatile* pipe — offering you a combination of advantages never before available in one piping product. Cycolac, the remarkable ABS plastic, has no equal for all-around serviceability. Miles of rigid plastic pipe made of Cycolac are now in use — serving and saving in cities like yours!

Write for the name of your nearest supplier

10 Reasons why you're right with Rigid Pipe made of CYCOLAC!

1. **HARD AND TOUGH — SUPERIOR TENSILE STRENGTH.** Excellent burst-resistance, even at high temperatures.
2. **LIGHTWEIGHT.** Easy to carry — approximately ⅛ the weight of comparable iron.
3. **RUSTPROOF, ROTPROOF.** Unharmed by soil acids — never corrodes or scales.
4. **NON-TOXIC.** Approved for potable water by the National Sanitation Foundation.
5. **CHEMICALLY RESISTANT.** Carries waste, salt solutions, organics with wet corrosives.
6. **LOW FRICTION LOSS.** Mirror-smooth interior surfaces insures higher rate of flow.
7. **VERSATILE.** Used for process piping — water systems — natural gas — electrical conduit.
8. **EASILY JOINED WITH METAL.** Used to replace corroded sections or to line metal pipe.
9. **EASY TO INSTALL.** Quickly jointed — less ditching — no costly handling equipment.
10. **LOW IN COST.** Less than most metal or plastic pipe — greater serviceability.

PACESETTER IN
Marbon CHEMICAL
SYNTHETIC RESINS

DIVISION of BORG-WARNER
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also represented by:

WEST COAST: Harwick Standard Chemical Co., Los Angeles, Cal.
CANADA: Dillons Chemical Co. Ltd., Montreal & Toronto
EXPORT: Borg-Warner International Corp., New York

BW
Marbon

Job-sized and budget matched . . .

NEW INTERNATIONAL® UTILITY TRACTORS

Only the new International power line—with 6 sizes of wheel tractors from 12.8 to 90 hp*—offers you a specific power-match for *each* of your particular types of jobs . . . assuring the maximum in performance from your equipment budget.

Ask your IH dealer to demonstrate . . . or write for his name and new specification catalog. International Harvester Company, Dept. AC-4 P. O. Box 7333, Chicago 80, Illinois.

* *Bare engine horsepower at standard sea level conditions*

SEE YOUR INTERNATIONAL HARVESTER® DEALER

International Harvester Company Products *pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

12.8 hp International® Cub® Lo-Boy® is your lowest-cost power buy for all-around utility. Cub Lo-Boy mows equally well with 3-gang mower . . . rotary or cutter bar mower . . . Hammer Knife mower. Year 'round utility with loader, blade, others.

Rotary mower: Wood Bros.

61 hp International 460 Utility with smooth six-cylinder power—gasoline, Diesel, or LP Gas. Provides top capacity for loading and trenching with International Pippin and International Wagner (shown) heavy-duty backhoes and loaders.

Cutter bar mower; IH . . . Loader: International Wagner

45 hp International 340 Utility combines brawn for heavy work with exceptional operating economy. Front-end loader and side-mounted cutter bar mower represent only one of the many equipment combinations available for this versatile power unit.

38.5 hp International 240 Utility, new IH power size, provides International durability and brawn matched to the lighter range of work. The 240 proves especially economical for mowing, utility loading, trenching to 10-foot depths, landscaping.

7-gang mower: Roseman

JOSLYN TYPE MV-131 400-watt MERCURY LUMINAIRES

WITH SPECIAL HEAT-RESISTANT GLASSWARE AT NO INCREASE IN PRICE

LIVE BETTER ELECTRICALLY

JOSLYN® COMPLETE POLE LINE EQUIPMENT

JOSLYN MFG. AND SUPPLY CO., 155 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

Air Pollution Control Notes

Costs, Progress, Promotion

The recent National Conference on Air Pollution held last November in Washington has produced several important results.

Arthur S. Fleming, United States Secretary of Health, Education and Welfare, has announced that a team consisting of representatives of industry, universities and government will be formed to determine the cost of an air pollution research program and to estimate what share the government, business and private interests should bear.

Secretary Fleming also announced that the Public Health Service's Robert A. Taft Sanitary Engineering Center, in Cincinnati, was starting on automobile exhaust studies and that animal experiments on the effect of auto exhausts on health are now under way.

Finally, air pollution control and health departments throughout the country may obtain, free of charge, two films from the Public Health Service, "Public Enemy" and "The Troubled Air." Both films are 16mm and have sound. Advance bookings may be made through state or local health departments or by writing to the Air Pollution Program, Public Health Service, Washington 25, D. C.

Donora's Killer Smog

A report on the long-term effects of the killer smog which enveloped Donora, Pa. in 1958 has been issued by the Department of Biostatistics of the University of Pittsburgh's Graduate School of Public Health. It was prepared for the U. S. Public Health Service.

The investigation revealed that the Donora residents who became ill during the 1948 smog had since shown a higher death rate and a higher frequency of disease than those unaffected by the smog.

Legislation Scheduled

The Health Department of ***Nassau County, N. Y.*** on fast-growing Long Island, has set up an air pollution investigation unit. First steps are to survey the problem in the county and to recommend legislation designed to control existing air pollution nuisances, to control open fires, and to achieve preventative air pollution control by regulating new construction.

South Bend Studies

The City of South Bend, Ind. is testing its air to obtain data which may help determine if the city needs an air pollution control ordinance. The equipment has been installed at the request of Indiana State Board of Health and the United States Public Health Service. It makes South Bend a station in the National Air Sampling Network.

Los Angeles

The Los Angeles County Board of Supervisors has banned the burning of certain fuel oils in industry for parts of the year. Only those fuels containing more than 5% of any sulphur compound have been restricted in use. The ban this year will extend from May 1 through October 31. In 1960, the seven-month ban, from April 1 through October 31 will be in effect.

The Los Angeles Air Pollution Control District considers high-sulphur fuel and automotive exhausts the two major pollutants in the Los Angeles atmosphere.

Speaking of Los Angeles, one physician in that city has submitted and had approved—after some difficulty with the Health Department—death certificates on which he listed "Los Angeles smog" as a significant condition contributing to death. Of the two cases thus far, one 80-year-old man died of a burst aorta during a coughing spasm and the other, a 73-year-old man, died of heart failure due to arteriosclerosis.

Contributing factors listed on death certificates are for reference only and reflect merely the opinion of the attending physician, a Health Department spokesman said.

Dr. John T. Middleton of the University of California revealed recently that studies show crop damage due to smog in the Los Angeles basin amounts to $6,500,000 yearly, mostly in leafy vegetables.

Cities Should Participate In Federal Aid Funds

TO PROTECT their own best interests, cities should be ready to help their state governments in matching federal money on federal aid projects. This is the view of Detroit's assistant city engineer for highways and expressways, Alfred Berarducci.

Speaking at the 57th annual convention of American Road Builders' Association held in Dallas, Texas recently, Mr. Berarducci stated that all units of government should make an effort to utilize their financial means to the utmost in order to use federal aid money to the best advantage. Michigan's example, he said, might be followed by other states to their own advantage. Their highway construction costs were met thus: 47% of highway revenues were allocated to the state highway department; 35% to counties, and 18% to cities. Further, cities with over 30,000 population were required by law to share in the cost of trunkline improvements, and counties to share in the cost of secondary roads. By following this pattern, Mr. Berarducci pointed out, cities and counties can share the responsibility of matching federal aid funds, thereby insuring that counties and cities will have a direct interest in highway improvement and will request only those projects which are "necessary and desirable."

Careful revision of existing highway laws is a prerequisite to the proper utilization of the system, Mr. Berarducci cautioned, and the maximum achievement is only gained when there is close cooperation between state, city, and county highway officials. The consumers, who are the highway users, and the builders, who are the highway engineers, must work together to solve highway problems.

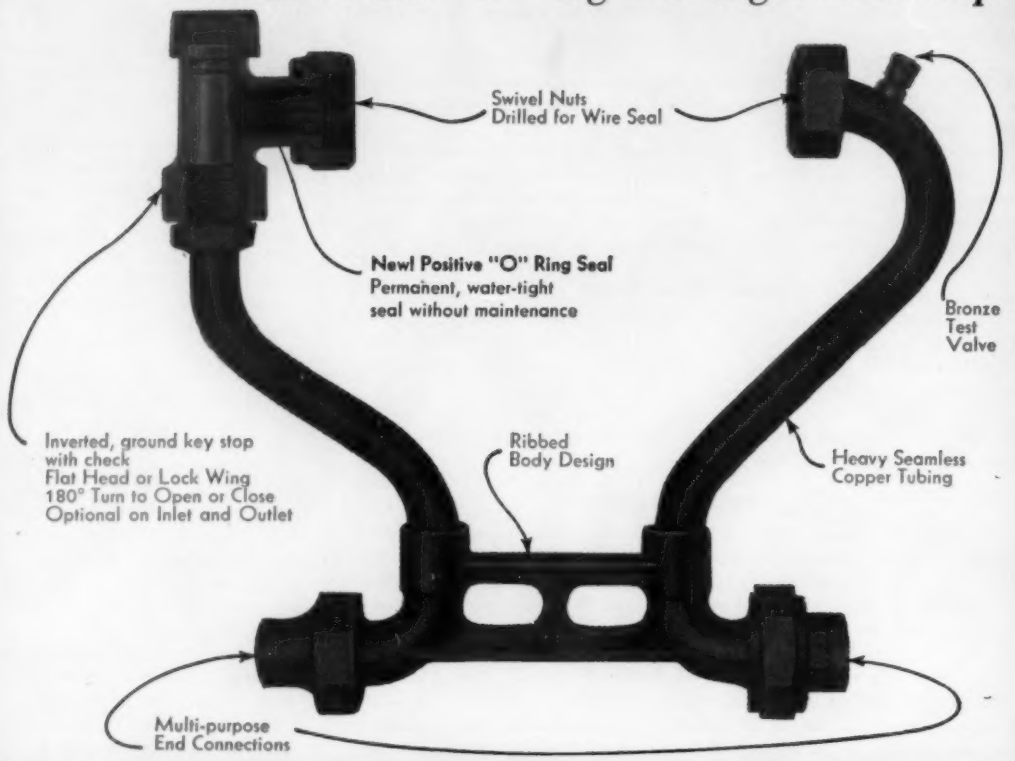
Public Survey Shows Park Needs

RECENTLY La Verne, Calif. conducted a recreation survey of all households by mail in order to establish guides for future planning of facilities. The questionnaire asked the respondent his opinion about the need for additional parks. He was also asked to indicate what sort of park and facility he preferred, the extent to which he would be willing to pay extra taxes for fi-

(Continued on page 38)

now! MUELLER®
copper meter yokes

...with a new "O" ring seal angle meter stop!



This exclusive new angle meter stop — now used on all Mueller Copper Meter Yokes — has a positive "O" ring seal at the top of the key. This "O" ring, plus the generous ground key surface between the port and top of the body, gives a dependable *double* seal against leakage.

Before your next water meter installation, consider the many features of Mueller Copper Meter Yokes. They are typical of the attention to detail in research, design and engineering that becomes a part of every Mueller product made for the water industry.

Write direct for details on the full line of Mueller meter setting equipment.

MUELLER CO. **DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

As time goes by, Rust-Oleum long wear assures lower cost over-the-years protection!

Rust-Oleum is distinctive as your own fingerprint. Accept no substitute.

Rust-Oleum's *unusual* resistance to extremes in rust-producing conditions—from sun and salt water to humidity, moisture, fumes, and weathering—assures you of lasting beauty. Long wear made possible, because Rust-Oleum's *specially-processed fish oil vehicle* works down through the rust into the tiny, microscopic pores in bare metal to STOP RUST. Important savings are realized by applying Rust-Oleum 769 Damp-Proof Red Primer *over rusted metal* after scraping and wire-brushing to remove rust scale and loose rust—as costly surface preparations are usually eliminated. See how Rust-Oleum can save you money...in your plant, or your home. Prompt delivery from Industrial Distributor stocks. Write for illustrated literature with color charts.

RUST-OLEUM CORPORATION • 2673 Oakton Street • Evanston, Illinois

RUST-OLEUM®

MANY ATTRACTIVE COLORS

Rust-Oleum finish coatings in Aluminum, White, Red, Gray, Green, Blue, Black, and Yellow provide double protection for tanks, machinery, girders, equipment, metal sash, wire fences, etc. Write for illustrated literature with color charts.

STOPS RUST!®

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation.

Radioactive tracing studies prove Rust-Oleum penetration through rust to bare metal

New! BADGER *Read-o-Matic REGISTER**

adds speed-reading to water metering

Here is the industry's first practical outdoor register — the Badger Read-o-Matic. Now meter reading routes can be completed in half the time — with no more wasted calls. Plus other important benefits such as:

• ***No more "lockouts"*** • ***No more in-house accidents*** • ***No more access problems*** • ***No more inconvenienced customers***

The new Badger Read-o-Matic means a modern meter reading system that your water department can have now — and opens a whole new realm of possibilities for the future. You'll want to read about them in our free new Badger Read-o-Matic folder.

*Pat. applied for in U. S. A. and foreign countries

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

Our Municipal Notebook

(Continued from page 35)

nancing and, finally, whether or not he was a taxpayer.

The questionnaires were mailed with the city water bills to each home. Included with the mailing was a postage-free envelope addressed to the Chamber of Commerce; a ticket for a drawing for merchandise awards served as an inducement to return the questionnaire. Forty-two per cent of the questionnaires were returned.

A tabulation of answers was prepared by William F. Cornett, City Manager; it shows that many of the citizens are anxious for specific facilities and are willing to pay for them.

How Marquette, Mich. Trains Its Administrators

By D. ROBERT VANDERBURG
Industrial Consultant
Public Service Division
Northern Michigan College
Marquette, Mich.

THE INCREASING NUMBER and importance of municipal governmental services and activities will continue to demand more emphasis on capable, efficient performance by municipal employees. This is not news. What the City of Marquette, Mich. has done under the leadership of City Manager George T. Meholick, Jr., working with Mayor James Clark and the City Commissioners in conjunction with Northern Michigan College, to develop more efficiency is outstanding.

Some time ago, Manager Meholick met with college officials to discuss the possibility of a management training program for city administrators and their assistants. This was a rather large order. As far as could be determined, only two other cities in the United States had attempted such programs. They were ***Saginaw, Mich.*** and ***Beverly Hills, Calif.***

The college developed a complete program and presented it to Manager Meholick. This was then forwarded to Mayor James Clark, who discussed it with the City Commissioners. After a thorough discussion, they instructed the manager to proceed.

The objectives were basic. First, was the continuing need for improvement. Next, was the need for a more contented and loyal working force operating under a program acceptable and beneficial to the citizenry. However, the most important factor was the proper, intelligent relationship of the supervisors with their workmen. Perhaps the greatest source of friction, inefficiency, waste and ill feeling is caused by the lack of trained, capable men who are capable of representing management to the workers.

Causes of Failure

Often the only representative of management the workman meets is his immediate superior. Extensive research shows that more than 70% of the failures in supervisory positions (industry, business and government) are caused by inability to work effectively with people; not by a lack of technical or mechanical knowledge of how to do their jobs. With these thoughts in mind the

following 48-hour program was evolved:

Leadership and Authority—3 hours

What factors make for leadership? Types of leaders, how to be the best and most accepted kind of leader. Sources of authority. Kinds of authority and their use.

Communications, Oral and Written—9 hours

The ability to communicate with people on all levels, orally or in writing. Understanding and being understood. The ability and techniques of carrying out instructions objectively without allowing personal bias or feelings to interfere. Techniques and methods for good, sound communications, up, down and across the organization.

Human Relations—6 hours

Understanding and working through people. Developing the ability to get things done through people. Knowing and treating people as individuals.

Types of Organization and Services—6 hours

Kinds of services the public asks government to perform. Types of organization—line, staff, committee and combinations of these. Reasons for organizations. How these organizations function in municipal government, their weaknesses and strength, where individuals fit into the organization. The best types of organization for public bodies.

Business Economics—6 hours

The basic facts of money and economics. The reasons for a city budget, its control and reasons for its control.

Labor and Public Relations—9 hours

How to conduct group meetings to obtain participation and to share thinking and ideas from the group, especially as applied to conducting department and staff meetings. Emphasis on group participation and how to acquire maximum benefits for efficient operation through group activity. Creating in employees the feeling of being a part of the organization.

Informal Sessions

The sessions were kept very informal, emphasizing group participation. The program ran for eight weeks and there were 45 city employees in attendance. Department heads, supervisors and foremen from the following city departments comprised the class: Public Works, Parks and Cemetery, Building Department, Light and Power, Accounts and Finance, City Clerk, Fire Department, Public Affairs, Water and Sewer, Police Department, Treasurer, Recreation Department, and City Assessor. The 45 men and women were divided into a morning group of 23 and an afternoon group of 22. Each group was mixed regarding departments and positions. Each session was 3 hours long with time taken out for a coffee break.

Participants made unsigned evaluations of each session as to content and capability of instruction. These permitted quick improvement of the instruction. For example, films proved to be unpopular and as a result were discontinued. The participants asked for more time and information on public and human relations with the result that more than the originally scheduled time was spent in these areas.

The participants were informed at the outset of the program that the college would provide Manager Meholick with written reports concerning pertinent information that came out of the meetings, but that no identification of the persons involved would be made. Because of the mixture of

Here's the big news behind the industry's first practical outdoor register

The Badger Read-o-Matic is powered entirely by the meter to which it is attached . . . works on an exclusive "pulse" principle. As water flows through the meter, the generator sends a pulse by wire to the Badger Read-o-Matic register outside for accurate recording.

Like our Badger meters, the Badger Read-o-Matic is precision-engineered — thoroughly tested by our trained water meter experts in the laboratory and in the field. Badger Meter products are the result of over 50 years of *specialized* water meter experience — products that excel around the world in accuracy, durability, dependability and low maintenance cost.

Send for free, colorful brochure that tells you all about the revolutionary Badger Read-o-Matic. For an actual demonstration, see your Badger representative or write us direct.

Badger Water Meters

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

"I bought another Sherman Digger because . . .

. . . competition is rough! To protect my business, I've got to have fast, maneuverable and trouble-free rigs that out-perform anyone else's. That's why I own two Sherman Power Diggers now and why, at one time or another, I have owned six Shermans. Performance is a must in my work—I get it with Sherman!"

CARL DIEM
Diem Septic Tank Installers, Flint, Mich.

Sherman units purchased from Otto P. Graff Tractor Sales, Flint, Michigan

Write for Bulletin No. 1090

SHERMAN S PRODUCTS

POWER DIGGERS • LOADERS • SOIL WORKING TOOLS • FORK LIFTS
CRANES and EXCAVATORS • FOUR-WHEEL DRIVES

SHERMAN PRODUCTS, INC., Royal Oak, Michigan

the groups and careful wording of the reports, this proved successful and in no way inhibited the participants. It was felt to be very important that such confidences not be violated.

The course was concluded with an awards dinner. This was the only time the groups met in the evening. Regular classes met from 9 a.m. to noon, and from 1:30 p.m. to 4:30 p.m.

An elected delegate from each group made an evaluation of the entire program at the dinner. They rated the course highly and suggested that this type of training be continued with more time spent on human, public and labor relations, communications, and group dynamics. They stressed the importance of group participation.

In addition, the participating city officials felt that this program had given them an opportunity to know each other much better as individuals. They acquired an appreciation of the problems and headaches encountered in other city departments. They expressed a stronger loyalty to, and support of, each other.

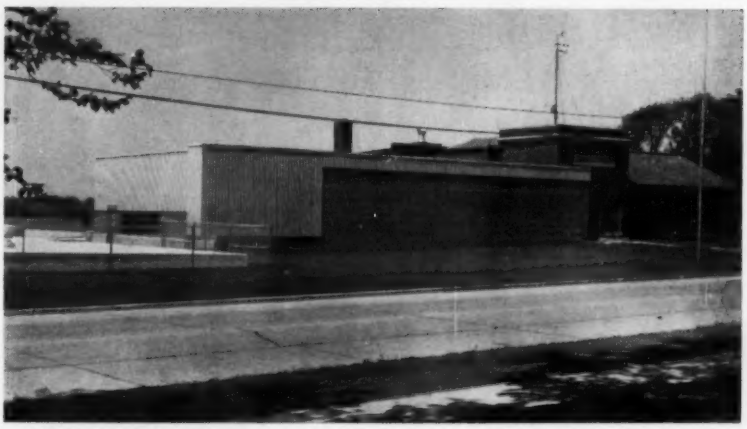
Small Cities Can Get Housing Census

IN 1950 the Bureau of the Census collected and published housing statistics for cities which had a population of at least 50,000 as shown in the previous census of 1940 or in a special census taken between 1940 and 1950. The Census Bureau in 1960 will again collect and publish housing block statistics for cities which had populations of 50,000 in 1950 or were over that number in a special census taken since then.

Because of great interest on the part of many users of housing statistics, and because of specific requests on the part of agencies and individuals working in urban renewal, slum clearance, urban planning, etc., the Census Bureau has offered to collect and publish block statistics for cities with *less* than 50,000 population on a contract fee basis.

The deadline for contracting for this block statistics program was originally set for September 30, 1958. However, in order to render service to the maximum number of municipalities the Census Bureau has now extended the date for requesting the program to May 1, 1959. Contracts must be signed by May 15, 1959. The date by which satisfactory block maps must be furnished to the Bureau has been extended to June 30, 1959.

Use Northern Gravel for Rapid Sand Filter



"All three filters have sand and gravel from the Northern Gravel Co. of Muscatine, Ia. We were very well satisfied with the quality of material and the service rendered by this company", says B. L. Whitney, Manager, Fairmont, Minn.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long specifications. Filter sand can be furnished with any effective years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. The requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

New King-Sized DUMPMASTER Automatically Collects and Hauls Up To 120 cu. yds. of Refuse per Trip

Shown above is the Dempster-Dumpmaster CA30-24DB model which has a capacity of 100 cubic yards of loose refuse material.

Shown above is the CA15-18DB which has a capacity of 72 cubic yards of loose refuse material.

DEMPSTER BROTHERS' Newest Addition Cuts Waste Disposal Costs

The famous DEMPSTER-DUMPMASTER 24 DB now has a big brother in the CA60-30DB model. Like the original Dumpmaster, it automatically handles detachable containers in one through six cubic yard sizes. However, it can pick up a gross load of 6000 pounds as compared to the 24DB's 3000 pound capacity.

Another important difference in capacity—the new model can compact up to 120 cubic yards of loose refuse while the 24DB gets up to 100 cubic yards per trip. Like all Dumpmasters, the new 30DB has clearance arms for safety . . . they never pass the cab windows . . . can't injure the operator.

Write today for FREE BROCHURE

The Originator and Only Manufacturer of the

Patents Pending

DEMPSTER BROTHERS Inc.

DEMPSTER DUMPSTER® SYSTEMS

Dept. AC-4 • DEMPSTER BROTHERS • KNOXVILLE 17, TENN.

Left:
Carole Anne Ramberg, Miss Downtown St. Paul, and Shirley Schroer, St. Paul Cleanup Queen, drop litter in new receptacles.

Right:
Clarence Nast, traffic bureau foreman, Miss Ramberg, and Clyde Tester, superintendent of streets, paint first crosswalk sign.

Press Comment Spurs Litter Drive

By CLYDE A. TESTER
Superintendent of Streets
St. Paul, Minn.

A ST. PAUL *Dispatch* columnist's barrage of verbal right hooks, which branded the city's Loop District a disgrace, has resulted in a vigorous cleanup program for our downtown area, support of downtown merchants for better street sanitation practices, and an assortment of new equipment that will help make the improvement permanent.

Newsman Gareth Hiebert caustically—and with justification—commented that the Loop looked horrible. However, he also said that there were no trash containers downtown. While we did not have as many as we wanted, and while we did not have the type we liked, containers were there.

We decided to take advantage of this reverse-English publicity by inviting Mr. Hiebert to join us on a walking tour of inspection. He gladly assented, and on this tour, we found a total of 36 wastepaper receptacles on street corners throughout the city, with 15 located in the downtown area.

We also showed him that:

1) Trades people were as guilty of littering as pedestrians.
2) Private rubbish haulers contributed heavily with uncovered trucks handicapped by ill-fitting tailgates.
3) Newspaper delivery crews sowed unsightliness, discarding wrappings on the streets or in catch basins.
4) Thoughtlessness and neglect were the rule of the day, and everyone, it seemed, had his share in the responsibility.

The Attack

Public Works Commissioner Adrian P. Winkel also recognized the value of this adverse publicity. We took the report that Mr. Hiebert and I prepared and used it to enlist the aid and cooperation of businessmen's organizations and of the police department. At the same time we felt that the time was appropriate to invest a little money in more and better waste receptacles. There obviously were not enough containers and those we had were not of the best design.

After testing several different types of receptacles, Commissioner Winkel authorized the purchase of 150 expanded metal Wheeling Corrugating Company baskets and a Packmaster truck to keep them emptied.

Expanded metal units were chosen because of their lightness and low maintenance costs. It had also been found during tests that open receptacles are more likely to move the average person to make use of them than are those that open by contact.

Participating civic and city organizations then went to work to promote a "Setting-out" program, installing a Miss Downtown St. Paul and a Clean-up Week Queen. On the day set aside for setting out the receptacles, a parade was formed and the girls, the truck and a trailer load of baskets were escorted through the downtown area at high noon by a police squad car equipped with a public address system.

The slogan, "DON'T JUST DROP IT—DROP IT IN," was prominently displayed on all units of the parade.

Shortly after the first 150 receptacles had been set out, 50 more were purchased. There are now 125 in the downtown area and 75 at major intersections in outlying districts.

Spacing of receptacles does not seem to affect litter control as much as prudent placement at bus stops, entrances to large stores and other points where people are most likely to congregate.

The initial campaign was highly successful and the continued high level of cooperation has been impressive. In the seven months that the new receptacles have been in use, the Packmaster has removed more than 7,000 cubic yards of paper and debris that would otherwise have found its way into the city's streets.

(See following page)

FAMOUS LITTER-FREE CORNER

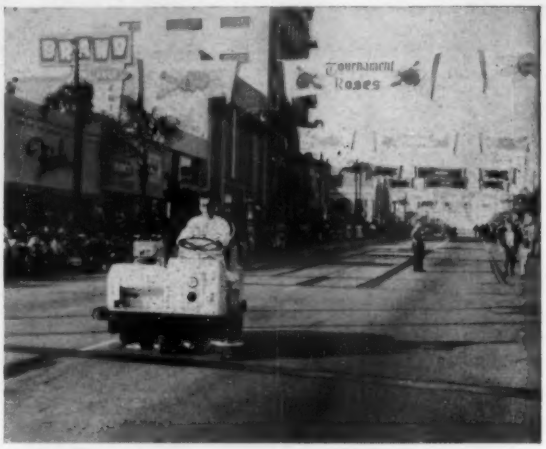
One easy push and litter's deposited. It can't blow away...and vermin can't reach it. Wheeling's sturdy, attractive Rubbish Can with Swing Door Cover is made of heavy-gauge steel that's hand-dipped in molten zinc to assure long life. Get the full story from your nearby Wheeling distributor, or contact your nearest warehouse or sales office (see opposite page).

WHEELING CORRUGATING COMPANY • IT'S WHEELING STEEL!
Other top-quality Wheeling products for municipal use include Heavy-duty Utility Cans, Utility Baskets, Pails and Mop Buckets.

A Sweeper Leads the Parade

THERE is nothing new about street sweepers following a parade but last New Year's Day one had the distinction of cleaning up ahead of Pasadena's annual Tournament of Roses Parade. This is no ordinary parade, as millions of people throughout the country know since the advent of television.

Besides assisting in the tremendous after-parade clean-up operation, a Wayne Model 706 sweeper cleaned up certain intersections ahead of the bands, floats and marchers. This particular model is designed to sweep up to 120,000 square feet per hour, indoors or out.



A quick spin in a Wayne sweeper over the streets in Pasadena just a few minutes before the start of that city's famous New Year's Day Parade assured a clean pathway for the marchers.

City Ordinance Governs Refuse Storage Area

THE building code of the City of Pomona, Calif., now includes a chapter designed to regulate storage areas for refuse to be collected from private property. Its intent is to facilitate the collection of refuse, to confine it within a designated area, and to keep streets and alleys unobstructed.

Provisions governing both residential and commercial areas are as follows:

Provisions

"Section 5202 (a). Scope and minimum requirements. The storage areas required in this chapter shall, except as otherwise provided herein, apply to apartment houses, hotels, motels, trailer parks and industrial and commercial establishments for which a building permit is required and such storage areas shall be a part of such permit.

"Plans showing such storage area shall be submitted to and approved by the Building Department. Such plans shall show the following and become an integral part of any building permit which is issued:

"1. An area adequate in size for the storage of refuse with a minimum area of 32 square feet.

"2. The storage area in so far as is reasonable shall be so located that a collection truck will have

easy and ready ingress and egress to and from the area for loading purposes.

"3. The stored materials shall be confined within the storage area by enclosing the area with a four-foot wall or fence with appropriate access gates, or by other means so as to prevent scattering of the stored materials by wind and other foreseeable forces.

"(b). Residential (R-1 and R-2 uses). In residential zones this ordinance shall apply only to walls and fences built parallel and adjacent to an alley. Such wall or fence constructed hereafter shall be set back from the alley a minimum of four (4) feet and this set-back shall extend parallel to the alley for at least eight (8) feet."

Private Trash Collectors Must Get Covered Trucks

BY THE LATTER PART of January, Philadelphia police sanitation officers had issued 40 summonses to private trash collectors for failure to provide enclosed trucks in their collection operations. New regulations requiring closed trucks went into effect January 1.

Streets Commissioner David M. Smallwood said that violators will be charged with operating without a license. However, licenses were withheld from the offenders only because they failed to provide the type of vehicle specified.

The regulations specify that trash and waste collectors must use permanently enclosed steel-constructed trucks that are leakproof, spillproof and dustproof. Almost 90 per cent of the private operators have complied.

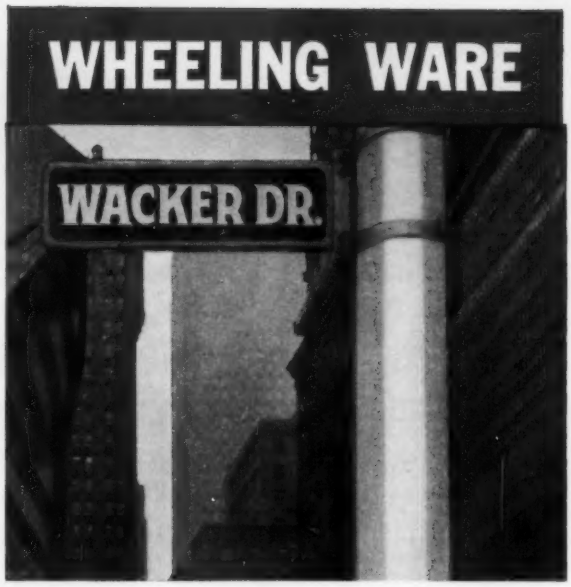
This enforcement drive is part of a program started in 1952 to improve sanitary conditions and keep streets cleaner by eliminating the use of open trucks for refuse collection. The city itself has used enclosed trucks for four years.

Expressway Construction Uses Large-Scale Landscaping

TREES, shrubs and grass make otherwise barren expressways attractive both to motorists and home builders and owners. However, this is no small project as is demonstrated by the following facts submitted by Morris Cherner, landscape engineer for the Cook County, Ill. Highway Department.

In the 14 plus miles of Edens Expressway from just north of Foster Avenue to the Cook-Lake county line there are 2,382 shade trees and 2,314 flowering trees, or an average of 310 trees per mile; 38,145 shrubs, or an average of 2,530 per mile; 480 acres of seeded grass and 200,000 square yards of sodding on steep embankments.

The trees are representative of native Midwest species and include sugar and red maple, white and green ash, honey locust, red and pin oak, linden, hawthorn of several varieties, cherry and flowering crabapple. No elm trees were set out because at the time there was much concern over the Dutch Elm disease. The shrubs include dogwood, wild roses, honeysuckle, viburnum, snowberry, coralberry, buckthorn and elderberry.



ANOTHER FAMOUS LITTER-FREE CORNER

Here's a litter basket that invites use. It's made to last, too. This Wheeling Expanded Metal Refuse Basket has welded reinforcing bands and ribs . . . rolled top-edging . . . one-piece Saf-T-Mesh construction. With galvanized, green or grey vinyl finish. Ask your Wheeling distributor, warehouse or sales office for details. Wheeling Corrugating Company, Wheeling, W.Va.

WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!
Warehouses at Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis. Other Sales Offices at Atlanta and Houston.

FREE Catalogs

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on the insert following page 52.

New Traffic Guide

100 This spike-shaped polyethylene plastic safety guide protects newly painted traffic lines, alerts motorists to road hazards, effectively channels traffic. It has low wind resistance, bounces back to shape from under crushing blows, and its color is permanent. For literature describing the Line-O-Guard, write M-B CORP., NEW HOLSTEIN, WIS.

All-Weather Tennis Courts

101 A specialist in tennis court construction, in discussing the asphalt composition court, points out that this type of surface permits year-round use, that it is dust-free, resilient and easy on the feet, and that it provides a safe nonskid, nonabrasive surface which is geometrically a true plane (if properly installed) giving uniform ball bounce. For details, write SKRAINKA CONSTRUCTION CO., 7173 DELMAR, ST. LOUIS 5, MO.

Tubeless Street Lighting Control

102 The latest innovation in Sun Switch street lighting controls is terminal isolation which prevents "arc-over" trouble. For complete information on this important development, write SUN SWITCH DIVISION, RIPLEY COMPANY, INC., MIDDLETOWN, CONN.

Frees Water Intakes from Debris

103 "Rack Rake" describes the operation and advantages of ruggedly built, power-operated mechanical rack rakes that clean trash racks at water intakes and are channel guided for maximum cleaning action. So if you're troubled by loss of head at water intakes due to floating debris, write NEWPORT NEWS SHIPBUILDING AND DRYDOCK CO., NEWPORT NEWS, VA.

Insignia for Municipal Uniforms

104 These embroidered insignia meet official standards for durability, colorfastness and workmanship. They are approved and used by thousands of city departments and agencies. For full information, free sketches and quotations for special designs, write JOEL & ARONOFF, INC., DEPT. AC, 932 BROADWAY, NEW YORK 10, N. Y.

Park and Play Equipment

105 Stainless steel slides, mountain climbers and swings are but a few devices in a complete line of sturdy, safe play equipment now being offered in color by one of the nation's oldest manufacturers of play-ground equipment. For free catalog and information on a free planning and layout service, write GAME-TIME, INC., 206 JONESVILLE RD., LITCHFIELD, MICH.

Plastic Pipe for Potable Water Systems

106 It is now possible to obtain test data and technical information on how nontoxic, noncorrosive Kralastic pipe economically serves municipal drinking water systems in two major areas—transmission and purification. Write to NAUGATUCK CHEMICAL DIVISION, UNITED STATES RUBBER, 344 K ELM ST., NAUGATUCK, CONN.

Increases Sewage Treatment Plant Capacity

107 The Rex Verti-Flo augments settling tank capacity; the Rex Rim-Flo increases capacity of circular clarifiers; the Rex Float-Treat System provides overload relief. In combination, they economically increase sewage treatment plant capacity. For details, write CHAIN BELT CO. 4648 W. GREENFIELD AVE., MILWAUKEE 1, WIS.

Plastic Pipe

108 All kinds of plastic pipe for sewage systems, water wells, water systems, golf courses and other municipal applications receive thorough coverage in literature, available from CRESCENT PLASTICS INC., DEPT. C-9, 955 DIAMOND AVE., EVANSVILLE 7, IND. When making your request, also ask about technical and engineering services available.

Sand and Gravel for Water Filters

109 When you specify Northern sand and gravel you get clean filtering media that have been carefully graded and feature the chemical and physical properties needed to assure proper filtering in the most meticulous municipal water filtering plant. For details, write NORTHERN GRAVEL CO., P. O. BOX 307, MUSCATINE, IOWA.

Water Pumps

110 One of the broadest lines of pumps capable of handling water and other nonabrasive liquids in quantities up to 70,000 gpm is thoroughly described in *Bulletin* B-1300, published by and available from PEERLESS PUMP DIVISION, FOOD MACHINERY AND CHEMICAL CORP., 301 WEST AVENUE 26, LOS ANGELES 31, CALIF.

Wheel and Crawler Tractors and Attachments

111 Literature just received details a powerful, versatile and budget-stretching line of wheel and crawler tractors that mount a variety of quick-change front and rear attachments for handling a wide range of municipal work—digging loading, trenching, etc. For your copy, write J. I. CASE CO., DEPT. C1569, RACINE, WIS.

Repairs Street Surfaces

112 Chuck holes, ruts and cracks in blacktop, concrete and other street surfaces disappear quickly and economically when ZOR-X is applied. This all-weather patching material can be driven over immediately after tamping, and can be applied when surfaces are damp and in temperatures as low as 15° F. For details, write THE MONROE CO., 10703 QUEBEC AVE., CLEVELAND 6, OHIO.

Service and Maintenance Truck Bodies

113 The new, low-cost Model UB service and maintenance body is but one in a complete line described in literature received from UTILITY BODY CO., 1530 WOOD ST., OAKLAND 7, CALIF. It readily lends itself to municipal service and its compartment interiors may be assembled to meet individual needs.

Something New in Mechanical Parking Garages

114 Municipal officials concerned with off-street parking will want to familiarize themselves with Park-A-Loft, a mechanical garage that produces first floor income and takes traffic surges right off the street. This may be done by viewing a color, sound movie of actual operations at a municipal installation or through literature. Address requests to RICHARD HAAS, MGR., PARK A-LOFT DIV., DRESSER-IDECO CO., DEPT. P-94, 875 MICHIGAN AVE., COLUMBUS 8, OHIO.

Air Control Valves Help Water Lines

115 By writing to MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA., you can obtain literature on several models of Crispin air valves, all designed to keep long water lines open for safe, economical operation.

Automatic Saws Cut Pipe and Costs

116 Fein portable, automatic pipe saws produce a milling cut quickly and economically on 6" to 60" cast iron or steel pipe in or out of the trench, and under water. Literature which discusses these machines feature by feature may be obtained from PRESCOTT TOOL CO., INC., WORCESTER 6, MASS.

Reinforced Concrete Pipe

117 The full advantages of reinforcing concrete pipe with welded wire fabric are given thorough presentation in literature available from THE AMERICAN STEEL & WIRE DIVISION OF UNITED STATES STEEL, 614 SUPERIOR AVE., N.W., CLEVELAND 13, OHIO, which makes such reinforcement in circumferential wire sizes up to and including ½" at 2", 3" and 4" on centers.

Accurate Water Meters

118 Explanatory literature on ruggedly constructed water meters whose sustained accuracy assures maximum revenue for water departments may be obtained by writing to CALMET METER DIVISION, WORTHINGTON CORP., 2301 S. MAIN, FT. WORTH, TEX.

Sewage Pumping Trouble-Free

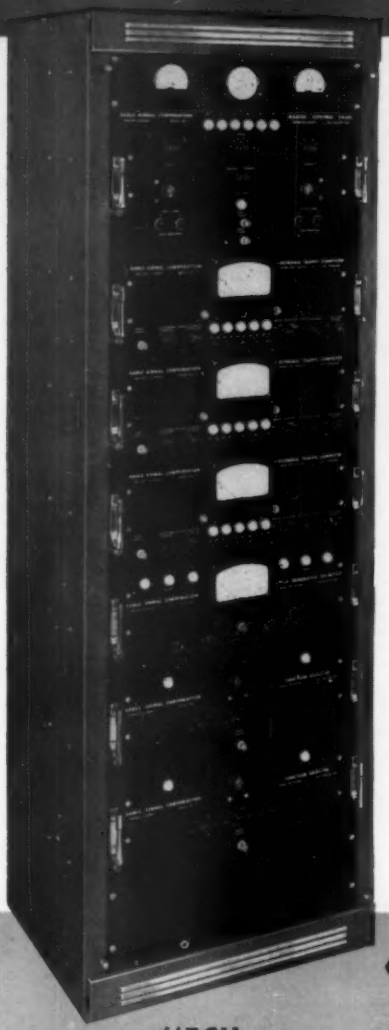
119 *Bulletin* 5440A gives full facts on one of many F-M nonclog solids handling pumps designed to meet a broad range of requirements and engineered to help you achieve higher pumping efficiency of unscreened liquids with large solids in suspension. For your copy, write FAIRBANKS-MORSE & CO., 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

Stops Odors and Grease in Sewers

120 A recently prepared technical bulletin, which gives complete facts about Cloroben Up-Sewer Chemical Rotation Method, includes directions for odor and grease control, cleaning of wet wells, force mains and sewer lines. For your copy, write CLOROBEN CHEMICAL CORP., 115 JACOBUS AVE., SOUTH KEARNY, N. J.

(See page 48 for more Bulletins)

from EAGLE



comes a NEW and much simplified solution to complex traffic problems

This new "EC" **Vehicle Supervised** System provides virtually unlimited flexibility for your complicated grids and arteries. Control of this highly flexible system is accomplished by introduction of the proper combination of vehicle detection and programming. Result of this combined control is a completely organized and automatic selection of splits, offsets and cycle lengths to meet each need as it arises, without unnecessary delay.

This NEW system also provides:

1. A complete choice of constant and variable settings with respect to cycle length.
2. Standard equipment easily and quickly converted from 2 to 3 or 4 phase operation.

Results: A highly accurate and flexible system having extreme "Built-In" Simplicity.

Simple to understand, set, check, adjust and maintain.

A TYPICAL "EC" *VEHICLE SUPERVISED* MASTER INTELLIGENTLY COMBINES TWO WELL-ACCEPTED PRINCIPLES OF CONTROL

1. Vehicle detection "sampling" during "normal" traffic flow.
2. Programming for **anticipated** heavy volumes of traffic.

A MOST COMPLETE CHOICE OF SYSTEM INTERCONNECTION

1. Multi-Conductor Cable
2. Eagle Monotrol®
3. Radio

Write today for descriptive bulletins! Address Dept. AC-459

THE "EC" *VEHICLE SUPERVISED* LOCAL

Provides a choice of:
4 Independent Splits
4 Independent Offsets
14 Cycle Lengths (standard)

A **Minimum** of 224 "Built-In" Functions or Traffic Patterns available at the intersection.

EAGLE

Eagle Equipment Saves Lives — Saves Time

Investigate before specifying

EAGLE SIGNAL CORPORATION

MUNICIPAL DIVISION — MOLINE, ILLINOIS

FREE Catalogs

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on the insert following page 52.

Compacts Granular Materials

121 The CM-15 is a self-propelled tamper that travels up to 55 feet per minute. It eliminates the need for traditional 4-5 man air tamp crew, or 10-ton roller, and is ideal for compacting all granular materials—sand crushed stone, gravel, etc. Weighing 242 pounds, it produces a 2300-pound impact with 2350 vibrations per minute. For literature, write VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J.

Pick-Up Trucks with All-Around Economy

122 When you specify a '59 Ford Six ½ ton pick-up truck you specify economy. These vehicles average 25.2% better gas mileage, haul a greater payload, get loads under way fast, and in trade-ins bring a high resale price. Proof of their economy is available in a test report of Economy Showdown U.S.A. For your copy, write P. O. BOX 2687, FORD DIVISION, FORD MOTOR CO., DETROIT 31, MICH.

Flexible Brush Chipper

123 Specifications, operating data, exclusive features and municipal applications of a rugged, reliable chipper which provides flexible and instant brush disposal are given in a colorful booklet, entitled "Chip Dollars From Your Overhead." For a copy, write FITCHBURG ENGINEERING CORP., DEPT. AC-49, FITCHBURG, MASS.

Salt for Street Work

124 The proper use of rock salt the year 'round means safer streets and longer-lasting roads. Information about the advantages of using it for both ice and snow removal and stabilizing roads may be obtained by writing to MORTON SALT CO., INDUSTRIAL DIV., DEPT. AC-3. 110 N. WACKER DRIVE, CHICAGO 6, ILL.

Rigid Plastic Pipe

125 The characterisics, versatility and all-around serviceability of rigid plasic pipe made of Cycolac, a tough, hard ABS plastic, is carefully explained in literature available from MARBON CHEMICAL DIVISION OF BORG-WARNER, WASHINGTON, W. VA.

Aluminum Bridge Railings

126 A printed folder containing complete drawings and specifications on aluminum bridge railings and accessories has been published by REYNOLDS METALS CO. For convenient use, the 26 separate drawings are printed on tracing paper. Copies of the folder are available on letterhead request by writing to the company at DEPT. PRD-5, BOX 2346, RICHMOND 18, VA.

Flushes Streets Clean

127 If you're interested in street flushers, write E. D. ETNYRE CO., OREGON, ILL., for information on an up-to-date unit that is regularly furnished with 3 nozzles, 600 gpm pump, 800 to 3,000-gallon tank, mechanical controls and vertical valves.

Explains Motor Grader Crawler Tractors

128 Three new specification sheets (MS-1325, MS-1192, MS-1284) just received from the CONSTRUCTION MACHINERY DIV., ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS., provide excellent and quick reference source for data about, respectively, the company's Forty Five motor grader, HD-16 and HD-16 DC and D diesel-powered crawler tractors. Each features cutaway views with marginal notes of models discussed.

100% Kill of Mosquito Larvae

129 By writing to WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO, you can obtain information on a capsule larvicide which delivers 100% kill to all species of mosquito larvae. Tossed into infested waters—breeding places such as swamps, ditches, catch basins, canals—one Tossit will larvicide 100 to 750 feet of water.

New Film on Refuse Collection and Disposal

130 Interested municipal planning or study groups may secure on loan and free of charge a print of a 15-minute color film which traces the history of refuse collection, points up many present-day problems and shows their solutions on location in several municipalities. Featured in the film is the Dempster Dumpmaster self-loading packer. When writing to DEPT. F-1, DEMPSTER BROTHERS, KNOXVILLE 17, TENN., give date film print is desired.

Floodlighting for Every Purpose

131 Information on incandescent and mercury vapor floodlights for sports, airports, traffic and underwater uses, hazardous locations, shopping areas and special purposes are cataloged in literature available on request from CROUSE-HINDS CO., SYRACUSE, N. Y.

Mowing Equipment

132 Whether you mow by the acre or by the mile, John Deere makes available complete equipment selection to meet your needs—a tough, responsive, sure-footed utility tractor, with hydraulically operated cutter-bar mowers for roadways, power rotary brush cutters, and reel-type gang mowers for parks and golf courses. For additional information, write JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL.

Pure Water Motion Picture Film Available

133 This full-color, 16-mm, sound motion picture—"Pure Water and Public Health"—designed to encourage people to learn more about the water needs of their communities and to assist water utility officials in securing public support in the planning and construction of new water systems, is available to municipal and water utility officials and civic organizations, on loan and without charge, from CAST IRON RESEARCH ASSN., DEPT. "M." SUITE 2440, PRUDENTIAL PLAZA, CHICAGO 1, ILL.

Water Treatment Facilities

134 Advantages of a single, responsible source which furnishes controls and chemical feeders for water filtration plants usually show up in better coordination, reliability, operating economies, improved performance. B-I-F is a multi-product manufacturer of equipment for positive control of materials in motion, and upon request will furnish literature and details. Write B-I-F INDUSTRIES, INC., UTILITIES SALES, 358 HARRIS AVE., PROVIDENCE 1, R. I.

Economical Departmental Car

135 The Lark makes a highly serviceable departmental car, yet it turns in savings via lower initial cost, economical fuel consumption, and minimum maintenance costs. It accommodates six adults, yet is only 14⅓ feet long—and so saves 18 square feet of parking space over conventional cars. For details and information on its adaptability to municipal fleet transportation, write MR. A. E. FITZPATRICK, MANAGER—FLEET SALES, STUDEBAKER-PACKARD CORP., SOUTH BEND 27, IND.

Water Service Products

136 Corporation stops are but one of a complete line of quality-fashioned water service products cataloged and described in literature available from the GENERAL PRODUCTS DIVISION, HAYS MFG. CO., ERIE, PA.

Submersible Pumps

137 For full details on submersible pumps that operate automatically, with no lubrication and minimum maintenance, that do not require air-conditioning and filtering equipment to remove heat and dirt from ventilating air, and whose noiseless operation permits them to be located close to the load center, write BYRON JACKSON PUMPS INC., P. O. BOX 70, LAWRENCEBURG, IND.

Aluminum Chain Link Fencing

138 In addition to meeting all security requirements for community facilities, this fencing has excellent appearance and reduces costs. It is highly corrosion resistant, lightweight and so easy to install, and extremely strong. For your copy of a 12-page illustrated booklet on all-aluminum fencing, write ALUMINUM COMPANY OF AMERICA, 2058-D ALCOA BLDG. PITTSBURGH 19, PA.

Steel and Aluminum Lighting Standards

139 Catalogs on trim, octagon-shape steel and aluminum lighting standards of superior strength and with strong bracket connections may be obtained by writing to DEPT. A-3, WELD FORGED LIGHTING STANDARD DIVISION. KERRIGAN IRON WORKS, INC. NASHVILLE, TENN., manufacturer of a complete line of standards for outdoor lighting use.

(See page 54 for more Bulletins)

Fantastic?

Not when you *rent* a Wayne Street Sweeper, pay for it out of operating funds... and actually own it at the end of the rental period for just $1.00—*all without capital investment!*

Cities all across the nation... and cities of *every* size... are making this Wayne Rental Plan the simple, convenient method of starting their own street sanitation program. Labor savings alone can pay the cost, streets are kept sparkling clean, and the Wayne is yours for continued service for years to come.

Before you invest in *any* sweeper equipment or program, send for the brochure outlining the exclusive Wayne Rental Plan for municipalities. It's yours for the asking—*write today!*

WAYNE MANUFACTURING CO.
2431 East Lexington Street, Pomona, Calif.
Send me details on the Wayne Rental Plan

Name_____ Title_____

Firm_____

Address_____

City_____ Zone____ State____

POMONA, CALIF. • CHICAGO, ILL. • NEWARK, N.J.

BIG AD CAMPAIGN WARNS OF GROWING WATER PROBLEM!

Urges local support for better water systems

CAST IRON PIPE RESEARCH ASSOCIATION OFFERS LOCAL PLAN-OF-ACTION BOOKLET

Here's help for you and everyone else directly concerned with the supply, treatment and distribution of water—help that will acquaint the people in your town with the vital importance of this growing problem.

On the opposite page you see the second in a series of advertisements, this one appearing in April *Reader's Digest*. Placed by the Cast Iron Pipe Research Association, these striking advertisements point out to Mr. and Mrs. America how much we depend on a good water system and why we can no longer take it for granted.

Similar advertising will appear regularly in *U. S. News & World Report*, *Nation's Business*, *Better Homes & Gardens*, *American Home* and *Sunset* magazines to carry this public service message to millions of civic leaders and homeowners.

FREE LOCAL HOW-TO-HELP BOOKLET

These ads offer a free booklet telling about the water problem. It shows how responsible citizens can acquaint themselves with the needs of their community. It also gives a step-by-step outline of action, telling how they can help their officials extend and improve the local water system through more adequate rate structures or financing.

Let us send you a free copy of this new booklet. Write to Thos F. Wolfe, Managing Director, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Ill.

THREE REASONS WHY CAST IRON PIPE IS *AMERICA'S GREATEST WATER CARRIER:*

1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.
2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.
3. Impartial surveys prove that today's consulting engineers and water utility officials prefer cast iron pipe for underground water distribution by an overwhelming majority.

CAST IRON PIPE

Reader's

Oh, what will you do without water?

You mean there's a shortage? Indeed there is. In the last five years over 1000 U. S. communities have had to ration water. It's growing less plentiful all the time. Will *you* run dry? It depends on you.

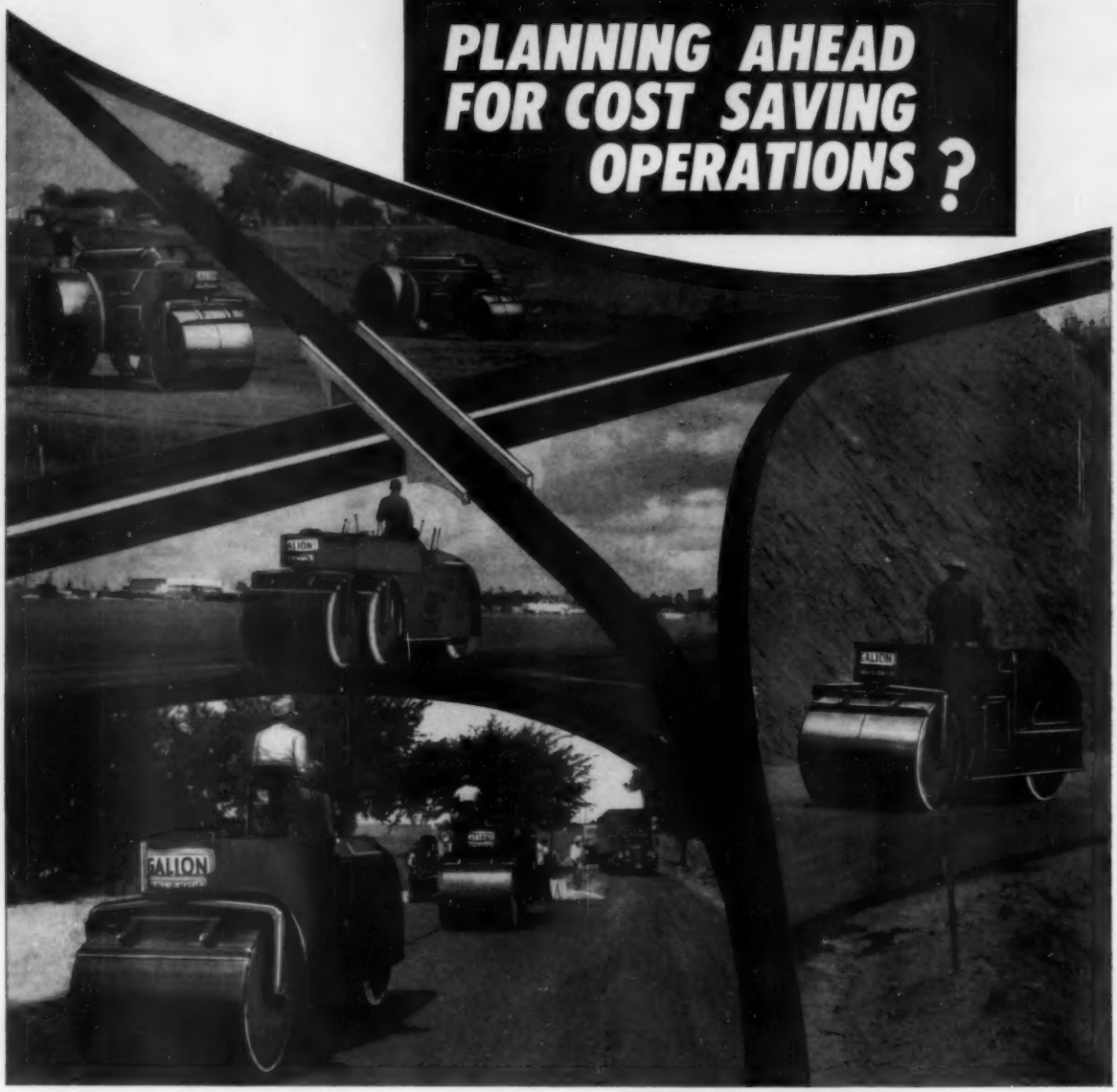
Now, what can you do about water?

This free booklet, "*WATER—make sure you'll always have plenty,*" tells how to learn if you're running short, what to do if you are. Write Cast Iron Pipe Research Assn., Prudential Plaza, Chicago 1, Ill.

Printed in your interest by the makers of America's greatest water carrier . . .

CAST IRON PIPE

PLANNING AHEAD FOR COST SAVING OPERATIONS ?



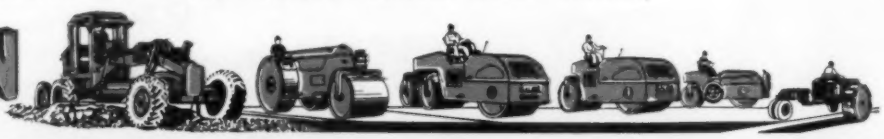
you can't beat a GALION

For meeting the toughest primary compaction specifications . . . for tonnage of finish material rolled per day . . . and for doing their job in the MOST ECONOMICAL manner — Galion ROLL-O-MATIC Rollers are supreme.

Write for literature.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices—Galion, Ohio, U.S.A.

GALION ESTABLISHED 1907



MOTOR GRADERS & ROLLERS

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows: starting on page 46

100	112	124	136	148	160	172	184	196	208	220
101	113	125	137	149	161	173	185	197	209	221
102	114	126	138	150	162	174	186	198	210	222
103	115	127	139	151	163	175	187	199	211	223
104	116	128	140	152	164	176	188	200	212	224
105	117	129	141	153	165	177	189	201	213	225
106	118	130	142	154	166	178	190	202	214	
107	119	131	143	155	167	179	191	203	215	
108	120	132	144	156	168	180	192	204	216	
109	121	133	145	157	169	181	193	205	217	
110	122	134	146	158	170	182	194	206	218	
111	123	135	147	159	171	183	195	207	219	

I would also like to receive manufacturer's booklets on .....

.....

.....

.....

Name (Please Print).....

Title:.....

Address:.....

..... 4-59

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 217 as circled below:

701	706	711	716	721	726	731	736
702	707	712	717	722	727	732	737
703	708	713	718	723	728	733	738
704	709	714	719	724	729	734	739
705	710	715	720	725	730	735	740

I would also like to receive manufacturer's booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 4-59

A Listing of Your Business Connection is Important

IT'S SO

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

take a reading on this meter!

True value is measured by initial cost divided by the years of faithful service.

Hundreds of progressive municipalities have long discovered that only Duncan-Miller meters rate highest in value received. Here's why:

- No winding by city personnel. No inoperative meters due to run-down springs.
- Five-second "lift-out" mechanism. No screws, bolts or tools required. Speeds all maintenance.
- Effective screening of all bent coins and foreign objects drastically reduces jams and service calls.
- Last coin in meter is mechanically ejected into coin box when mechanism is lifted for service purposes. Eliminates temptation.
- Tough . . . rugged mechanism resists abusive treatment. Simple to maintain with minimum of parts inventory.
- Heavy duty, stainless steel and clock brass timer assures long serviceable life. No professional maintenance personnel or expensive factory services required.
- Hundreds of practical time and rate combinations for curb and off-street parking facilities.
- Accepts pennies, nickels, dimes, quarters and tokens. Easily convertible from one combination to another.
- Substantial housing casting highly resistant to attempts of vandalism. Strong, rugged door area protects meter revenue.
- Exclusive patented sealed coin box offers maximum security with only one locked box.

A Demonstration Will Convince You

Write Today

DUNCAN

DUNCAN PARKING METER

DIVISION OF MOTOR PRODUCTS CORPORATION

835 N. WOOD STREET • CHICAGO 22, ILLINOIS

CATALOGS *for Improved Municipal Services*

Write directly to the address given or use the Post Card on the insert following pg. 52

Vacuum Cleans Streets

140 The Obeco Tornado quickly and economically cleans streets by sucking up leaves, trash, cans and other light debris through a flexible suction hose into a specially designed, air-tight truck body. For a 4-page folder giving features and specifications write OMAHA BODY & EQUIPMENT CO., OMAHA, NEBR.

Dependable Chlorine Control

141 Simple, reliable, wide-range chlorine control is discussed in the booklet "The V-Notch Story," which tells about the features of W&T's V-notch chlorinator that needs no auxiliary water supply. For your copy, write WALLACE & TIERNAN INC., 25 MAIN ST., BELLEVILLE 9, N. J.

Sewage and Sump Pumps

142 There's a Weil submersible sewage and sump pump to meet all requirements, and *Bulletins* SE-860, SE-862 and SE-865 (505) describe them. Available in a choice of two motors and with a choice of two controls, they are manufactured in discharge sizes of 3" to 6" and capacities to 2,000 gpm. Write WEIL PUMP CO., 1518A N. FREMONT ST., CHICAGO 22, ILL.

Pulling RABBITS out of a HAT

It is obvious that water rates should be sufficient to finance maintenance, operations and necessary new construction. But water rates in America have been too low for over 75 years. The average paid by American water consumers for all water used is a little over 2 cents per day or 5 cents per ton. Water is the cheapest necessity you buy.

There are now many water distribution systems too small to supply peak demands of the growing communities they service, because they have been unable to finance new construction out of revenue. With a 65 to 70% potential increase in water consumption now predicted by 1975, the problem daily becomes more serious and water works improvements and extensions are needed on an increasing scale.

A magician may really appear to pull a rabbit out of his hat. But you can not expect your water works Superintendent to secure in that manner increased water supply, treatment, and distribution. To serve you better, he needs your help.

This Series is an attempt to put into words some appreciation of the water works men of the United States.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

SUBSIDIARY OF WALWORTH

Aluminum Lighting Standards and Brackets

143 Complete information on aluminum lighting standards and brackets that will assist you in bringing up-to-date design, permanence and economy to your outdoor lighting program may be obtained from HUBBARD ALUMINUM PRODUCTS CO., 6301 BUTLER ST., PITTSBURGH 1, PA. Request HAPCO *Catalog* HAL259.

Cast Iron Pipe for Water, Sewage, Gas Services

144 Informative literature on APCO Super DeLavaud cast iron pipe for water, sewage and gas lines is available from ALABAMA PIPE CO., ANNISTON, ALA. The pipe comes in sizes 3" to 24", in long lengths and with bell and spigot, roll-on-joint and mechanical joint.

Prepares Seedbeds After Rough Grading

145 A multi-purpose tool called the Sherman-Gill performs six operations for proper preparation of seedbeds after rough grading—scarifying grading, leveling, breaking clods, pulverizing and rolling. When combined with the Sherman Landscraper it does the rough grading, and when equipped with a special attachment also seeds. For details, write SHERMAN PRODUCTS, INC., DEPT. 1091, ROYAL OAK, MICH.

Need More Water?

146 LAYNE & BOWLER, INC., MEMPHIS 8, TENN., provides all the services allied to the field of water supply, initial surveys, explorations, recommendations; site selection; foundation and soil sampling; well drilling; well casing and screen; pump design, manufacture and installation; design and construction of water systems; research staff and facilities; maintenance and service; chemical treatment of water wells; water treatment. For details, write the company.

Meters for On-Street or Off-Street Parking

147 You can now avail yourself of free details on a parking meter line with flexibility for meeting a wide variety of metered parking needs and special planning programs based on 25 years of parking meter experience and know-how by writing to DUAL PARKING METER COMPANY, SUBSIDIARY OF ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Precise Surveyor's Level

148 *Booklet* N-III discusses a level which municipal surveying crews can count on for absolute accuracy, dependability and ruggedness. Easy and quick to set up and operate, it is available in three models, all with tilting screw, coincidence level and built-in optical micrometer. For your copy, write WILD HEERBRUGG INSTRUMENTS, INC., MAIN at COVERT ST., PORT WASHINGTON, N. Y.

A pH Recorder

149 In filter and water softening plants, and for systems and processes where it is desirable to know if a solution is acid or alkaline and to measure the degree of this condition, a pH recorder consisting of a Beckman electrode assembly and amplifier and a Bailey potentiometer recorder proves ideal. For details, request *Product Specifications* E12-4, E67-5, and E67-6 from BAILEY METER CO., 1050 IVANHOE RD., CLEVELAND 10, OHIO.

(See page 57 for more Bulletins)

Here's how they install a concrete distribution line in Marrero, Louisiana

In this photo, the backhoe operator has just finished digging the trench and is now lowering the 16-foot length of prestressed concrete steel-cylinder pipe into position. Workmen are guiding it under an existing service line running across the trench.

Here the operator is carrying the pipe forward to make the joint with the section already installed. The steel-and-rubber-gasket goes together quickly and makes a bottle-tight connection. This method was used on 23,000 feet of 16-inch and 4,000 feet of 20-inch line.

This fellow's job is to grout the joint after the pipe is installed.

High-lift was used to backfill and to handle the pipe on this job.

Although this type of pipe goes in quickly, its biggest advantages are long life (concrete gets harder and tougher the longer it stays underground), high beam strength (steel cylinder resists earth movement and traffic loads) and high capacity (concrete core is ideal for flow of water). Fromherz Engineers, New Orleans designed the project and Harbert Construction Corporation, Birmingham handled construction for the Jefferson Parish Waterworks District No. 3. Pipe was manufactured by Price Brothers Company, with headquarters plants in Hattiesburg, Miss., and Dayton, Ohio.

Price Brothers

Lower Battery Drain—No need now for heavy duty batteries and generators. Current drain on "stand-by" is 1/3 that of tube-type receivers, 1/15 with battery saver switch.

Greater Reliability—Transistors, printed circuits and new design all greatly increase reliability.

Smaller, Lighter—Approximately 1/2 the weight, 1/3 the size of other models. Mounting in tight quarters easier than ever.

Completely transistorized receiver and power supply... Another Motorola First!

Here is 2-way radio with efficiency and reliability never before approached in mobile radio. No more tubes in the receiver —no more vibrators in the power supply . . . all are replaced by long life, dependable transistors. No longer is it necessary to idle the vehicle to keep the radio operating. Savings in gasoline, engine wear and batteries add up fast. Let us prove to you how MOTRAC radio will cut your radio operating costs . . . while giving you reliability never before possible. Write today.

MOTOROLA 2-WAY RADIO

Motorola Communications & Electronics, Inc. • A Subsidiary of Motorola Inc., 4501 Augusta Blvd., Chicago 51, Ill.

MOTRAC is a trademark of Motorola Inc.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Safely Speeds Overhead Maintenance

150 In just seconds, Strato-Towers lift overhead maintenance crews and tools from ground level to heights up to 100 feet, where work is accomplished with safety and speed. For details on these hydraulic, mobile-mounted, operator-controlled aerial platforms, write STRATO-TOWER DIV., YOUNG SPRING & WIRE CORP., P. O. BOX 103, ELKHART, IND.

Factory-Built Sewage Treatment Plant

151 Data manuals that include design notes, selection charts, dimension drawings, specifications and a list of representative installations for the Oxigest, a factory-built sewage treatment plant designed to provide economical and dependable treatment for schools and small subdivisions may be obtained from SMITH & LOVELESS, INC., P. O. BOX 8884, KANSAS CITY, 15, MO.

Fast-Working Tractor-Trencher

152 The Oliver 880 tractor and the Model 80-Hydro-Trencher with ½-yard bucket that digs and loads to 12 feet make a highly mobile team that can quickly rip out pavements, dig in hardest soils and boost production as much as 75%. For details, write THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

Pneumatic Sewage Ejectors

153 *Catalog* KSM-2 discusses carefully designed pneumatic sewage ejector systems ruggedly constructed to give exceptionally long-life and maintenance-free service. For your copy, write KOMLINE-SANDERSON ENGINEERING CORP., 103 HOLLAND AVE., PEAPACK, N. J.

Post Top Luminaire

154 *Bulletin* 58203 discusses a post top luminaire especially suitable for applications where both decorative appearance and efficient light utilization are desired. It is designed for use with incandescent lamps, or with ballast for mercury vapor lamps, and is available with a cadmium sulphide photo control. For this literature, write LINE MATERIAL INDUSTRIES, DEPT. AC-49, MILWAUKEE 1, WIS.

Rockwell Develops Bigger Magnetic Meter

155 The newest member of the Rockwell meter family is a ¾" size Sealed Register meter to handle larger services. Its powerful magnetic drive eliminates the need for a stuffing box, permits use of a hermetically sealed, fog-free register and provides an economical easy-to-repair construction in which only two parts operate under water. For full facts, write ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Fastest Brush Chipper

156 Uniform chipping action. Accepts brush up to 6 inches in diameter. Safe, economical operation. Lower maintenance. Superior tracking. These are some of the features pointed out and discussed in literature published by ASPLUNDH CHIPPER CO., 505 YORK ROAD, JENKINTOWN, PA., on what tests have shown to be the fastest brush chipper made.

Spreads Sand, Gravel, Slag, Stone and Salt

157 The Good Roads "Handy", which smoothly and accurately spreads aggregate up to 1 inch in diameter from powder fine to 3-inch depths, is available in 6 models for spread widths of 8, 9, 10, 11, 12 and 13 feet. For application and operation information, write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

Hydraulic Truck Crane

158 Whether laying pipe, loading paving forms or setting steel, the new Model 50 HydraLift works quickly and with sureness, lifting up to 5,000 pounds. Its boom swings a full 360% and can be carried either over truck bed or over the cab. For literature, write PITMAN MFG. CO., GRANDVIEW, MO.

For Fine Street Lighting

159 The redesigned G-E four-lamp, 6-foot fluorescent luminaire for street, highway, and interchange lighting is exhaustively described in 2-page *Bulletin* GEC-1462B, available from General Electric Co., Schenectady 5, N. Y.

Cleans Catch Basins

160 A 6-page descriptive folder explains how the Netco with orange peel or clamshell bucket efficiently cleans an average of 20 to 30 catch basins a day at less cost. The unit has a hoisting capacity up to 1500 pounds and can be mounted easily on any short wheel-base truck with 8 feet in back of cab. Write NETCO DIV., CLARK-WILCOX CO., 118 WESTERN AVE., BOSTON 34, MASS.

Insulates, Protects Metal Equipment Against Rust

161 A plastic coating that stops costly condensation, drip and rust resulting from sweating pipes, air ducts and other metal equipment is given thorough presentation in a 32-page booklet made available by J. W. MORTELL CO., 565 BURCH ST., KANKAKEE, ILL. Ask for the "NoDrip Data Handbook."

Destroys Insect Pests

162 TIFA makes possible a better insect control program for your community. It rapidly covers large areas with fog, penetrates crevices, envelops and destroys mosquitoes, flies and other insect pests. For an illustrated folder on this insecticidal fog applicator, write TODD SHIPYARDS CORP., PRODUCTS DIV., COLUMBIA AND HALLECK STS., BROOKLYN 31, N. Y.

Dependable Engine Generator Sets

163 Diesel or gas engines for water, sewage treatment or power plants to work as prime power, supplementary power or standby power, are discussed in literature available from WHITE DIESEL ENGINE DIVISION, WHITE MOTOR CO., SPRINGFIELD, OHIO, manufacturers of Superior engines in ranges from 215 to 2150 horsepower, or 150 to 1500 kilowatts.

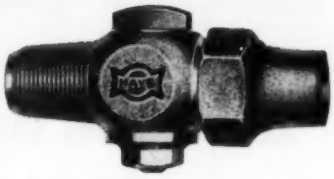
Plastic Traffic Markings— Free Test Kit

164 An easy way for municipal traffic safety officials to acquaint themselves with an up-to-date method of street marking that will mean more safety, better performance and lower costs, is to send for the NEFSLABS Test Kit. It is free and carries no obligation, and is available from J. W. NEFF LABORATORIES, INC., STOCKERTOWN 3, PA.

(See page 58 for more Bulletins)

HAYS

the Quality Line IN WATER SERVICE PRODUCTS



CORPORATION STOPS

One of a complete line of Water Service Products

GENERAL PRODUCTS DIVISION

HAYS MFG. CO.

ERIE, PA.

Municipal generating station at Zeeland, Mich.

New F-M 2800-hp. dual-fuel diesel, installed in Oct. 1957.

Even with poor load factors

new F-M dual-fuel diesel cuts fuel costs 21% for Zeeland plant!

From July through October 1958, this 2800-hp. Fairbanks-Morse dual-fuel diesel produced 71 percent of the 4,502,000 kw. hr. generated at the Zeeland, Michigan municipal plant.

The big Model 31AD18 engine averaged 5.74 mills per kw. hr. for this period—bringing average fuel cost for the plant down to 6.52 mills from an average 8.24 the previous year, a 21 percent reduction in fuel costs! The figures are even more impressive when it is realized the F-M diesel was operating at poor load factors, often well below 50 percent. Despite this disadvantage, F-M dual-fuel design made the operation profitable—even with gas costing 45¢ a thousand cubic feet and pilot oil 12.5¢.

Outstanding economy and dependable performance of six Fairbanks-Morse diesels in the plant are paramount in Zeeland keeping residential rates among the lowest in Michigan—averaging 2.3¢ a kw. hr. for the last fiscal year. For information, write Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

DIESEL, DUAL FUEL AND GAS ENGINES • LOCOMOTIVES • ELECTRIC MOTORS • GENERATORS
PUMPS • SCALES • COMPRESSORS • MAGNETOS • HOME WATER SYSTEMS

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Lifting-Digging Machine

165 This 2-in-1 rig both lifts and digs. Within 5 minutes it converts from crane, able to lift 12 tons, to clamshell. It mounts on any commercial truck, works in close quarters or stretches out for 70-foot reach, and is rock-steady over any kind of ground. Literature, available from DEPT. 2H59, BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS., describes the Hydrocrane feature for feature.

Street and Safety Signs

166 The current GRIMM STAMP & BADGE CO. catalog lists over 200 U. S. standard traffic signs, illustrates and describes embossed aluminum and steel signs, post, and 1-piece aluminum brackets, and features new aluminum hand signs for rail crossings, schools, construction crews, utilities. For this informative literature, write the company at 8105 ROSALIE, ST. LOUIS 17, MO.

Peps Up Water Filters

167 Better results from filtering media may be obtained through use of a Palmer surface wash agitator. It requires about 40% less wash water, eliminates mud balls, prevents cracking and shrinking of beds, enables you to increase filter runs up to 50%. For literature, write PALMER FILTER EQUIPMENT CO., P. O. BOX 1655, ERIE, PA.

For Better Ice Control

168 Illustrated *Bulletin* A-408-A discusses a hydraulic spreader that permits spread in front of all four wheels; improves traction, visibility and pattern. Width of spread, amount of spread, starting and stopping are controlled by driver. For details on this truck-mounted spreader, write BAUGHMAN MFG. CO., 212 SHIPMAN ROAD, JERSEYVILLE, ILL.

Easy Way to Patch Streets

169 Producing a compact, water and frost resistant patch that becomes a permanent part of the street in less time, with less labor and less money is a specialty of the Tarbaby, which offers controlled compaction by hydraulic weight control. When not in use, this roller is drawn up under the dump body of the truck to which it is attached. For details, write AMERICAN COLEMAN CO., LITTLETON, COLO.

Fork Lift Trucks

170 Three new bulletins from the ENGINE-MATERIAL HANDLING DIV., ALLIS-CHALMERS MFG. CO., MILWAUKEE, WIS., are packed with information about the company's line of fork lift trucks: BU-302A contains specifications of the entire line; BU-452 reviews some of the engineering features; BU-453 spotlights the recently introduced "HeftyFT", 2,000-pound capacity FT 20-24 lift truck.

The Problems of Boiler Corrosion

171 A revised technical bulletin, available from INORGANIC CHEMICALS DIV., MONSANTO CHEMICAL CO., 800 N. LINDBERGH BLVD., ST. LOUIS 66, MO., describes Santosite, its use in attacking the problems of boiler corrosion, the action of oxygen in boiler corrosion, the principles of Santosite treatment and the operating procedures required for effective use.

(See page 61 for more Bulletins)

Look Inside the possibilities of popular YORK ice rinks

Give families in your community the fun of ice skating in 1960!

Reliable York Equipment Assures Low Cost Operation; Pays For Itself Quickly From Admissions

Superior recreation facilities for the families in your community need not be a costly tax burden...

York ice rinks, for example, have paid for themselves out of admission charges in many civic installations and now provide money for the constant improvement of the winter play areas...making them more attractive to children and energy-filled teenagers as well as to under-exercised adults.

York can help you plan the type and size rink most suited to bring these benefits to your community. Early consultation with York representatives will help you avoid costly errors in system selection and will give you a dependable installation—the most important aspect of a low-cost operation.

Start planning for next winter now. Call your nearest York Representative or write York Corporation, York, Pa.

YORK

YORK CORP. SUBSIDIARY OF BORG-WARNER CORP., YORK, PA.

BORG-WARNER
RESEARCH & ENGINEERING
MAKE IT BETTER

Air Conditioning, Heating, Refrigeration and Ice Making Equipment • Products for Home, Commercial and Industrial Installations

A VOTING MACHINE UNLEASHES AN ADDED 300 MILLION GALLONS OF WATER DAILY!

A flick of a lever by an overwhelming number of New Jersey voters set in motion a long range program for supplementing the State's already over-burdened water resources with an additional 300,000,000 gallons of water per day.

The economic future of your community too, depends on farsighted water works planning—such planning deserves to be implemented with the best—LOCK JOINT CONCRETE PRESSURE PIPE.

Durable—low cost—easily installed—LOCK JOINT CONCRETE PRESSURE PIPE, because of its minimum maintenance requirements and permanent high carrying capacity, solves tomorrow's pipe line problems TODAY, economically.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Restores Sewer Systems to Full Flow Capacity

172 A root cutter-sewer cleaner, which can be adjusted in 30 seconds to fit any sewer from 8 to 30 inches, cleans the entire sewer wall top, sides, bottom cutting and removing roots and caked sediment and restoring the sewer to an almost 100% clean condition. For catalog information, write EXPANDING SEWER MACHINE CO., 108 E. WALNUT ST., NAPPANEE, IND.

Big Beam Hazard Warning

173 A new transistor-type barricade flash, the Model M410T, designed for heavy duty and equipped with two-directional head or 360° dome-type Fresnel produces about 2,000 hours of continuous flashing. For its full story, write U-C-LITE MFG. CO., 1063 W. HUBBARD ST., CHICAGO 22, ILL.

Well Strainers

174 Catalog information on wire-wound or brass tube-type well strainers with V-shaped, self-cleaning slot that assures fast, free flow of clean water from wells, prevents clogging, and contributes to the good natural development of water-bearing formations may be obtained from COOK WELL STRAINER CO., 6330 GLENWAY, CINCINNATI 11, OHIO.

Engines for Every Fire-Fighting Need

175 These engines are the heart of Mack fire apparatus performance. They are packed with power, work in harmony with all other Mack components, and are crafted to the highest standards. In both road and pumping performance, they excel. For details, and information on a complete line of pumpers, squad and hose wagons, aerials 65' to 100' and combination ladder trucks, write MACK FIRE APPARATUS, SIDNEY, OHIO.

Better Light, Better Business

176 Will your next street lights have lenses of Pyrex glass? They not only direct the light down on the pavement, but resist storms, cold and vandals. Good lighting stimulates shopping and promotes better business. For facts on how these refractors make the light right, write CORNING GLASS WORKS, 63 CRYSTAL ST., CORNING, N. Y.

Generators and Generating Plants

177 Belt-driven generators and electric generating plants for standby electric power when regular power fails are discussed and illustrated in a new booklet available from PIONEER-GEN-E-MOTOR CORP., 5841 W. DICKEN AVE., CHICAGO 30, ILL.

Diatomite Filters for Swimming Pools

178 Detailed information prepared to help you with your swimming pool filter problems is given in technical *Bulletin* 626, which discusses SPF diatomite filters. Inert to chemical corrosion and electrolytic action of chlorinated water, they are available in sizes of pools of 50,000 to several million gallons capacity. Write R. P. ADAMS CO., INC., 202 E. PARK DRIVE, BUFFALO 17, N. Y.

Brush Chipper Facts

179 Facts and features on the only brush chipper that produces large or small chips are given in *Catalog* No. 657, available from MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH., manufacturer of the Beaver brush chipper.

Cemetery Planning

180 The subject of cemetery planning is comprehensively treated in a booklet, available from ROCK OF AGES, BARRE, VT., which includes chapters on designs for large and small sections, suggested cemetery rules and regulations, specifications for memorial work and companion garden sections.

How to Use a "Payloader"

181 To learn of the various "Payloader" models available, and of their attachments, and exactly how municipalities use them, ask THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL., for a copy of its booklet "No. 1 in Public Service."

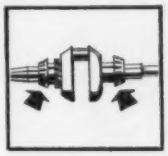
Liquid Limit Soil Tester

182 By writing to SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO 39, ILL., you may obtain complete information on the Model CL-207, that company's new liquid limit testing machine for performing classification tests on soils.

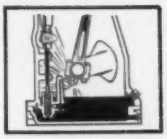
(See page 62 for more Bulletins)

Not the Lightest Weight

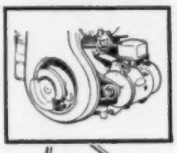
but the **HEAVIEST DUTY**



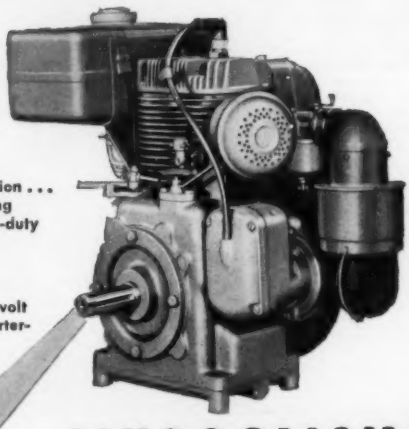
Tapered roller bearings at both ends of crankshaft . . . preventing bearing failure.

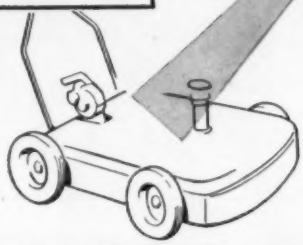


Positive lubrication . . . forged connecting rods with heavy-duty bearing.



Heavy-duty 12-volt combination starter-generator . . . available for models 3 to 9.2 hp.





WISCONSIN ENGINE POWER

• The most important "mower *ingredient*" is the engine that drives it . . . which is why it pays to specify "Wisconsin," unmatched in heavy-duty features in the mower engine field. Put a hefty Wisconsin Engine-powered mower to work and you get more workhours out of the manhours you pay for. There's far less downtime due to "engine problems." Write for bulletin S-237 describing all Wisconsin Engines. Electric starting equipment available on all models.

More than 2,000 service stations...one or more in your area.

WISCONSIN MOTOR CORPORATION

MILWAUKEE 46, WISCONSIN

World's Largest Builders of Heavy-Duty Air-Cooled Engines

A9-6262

This air view of the City of Tacoma, Washington shows a portion of the industrial area in the foreground with the business district and Commencement Bay in the background. The detail illustration at right, shows a typical cluster of Crispin Air Valves in a Tacoma installation.

"...installed in 1913
...good for another 45 years..."

from Tacoma comes your proof that
Crispin AIR VALVES *are dependable!*

Here is your *advance* proof that Crispin Air Valves will give you dependable service *for years.* Mr. J. A. Kuehl, Superintendent of the Water Division, Department of Public Utilities, City of Tacoma, Washington puts it this way . . .

"It may be of interest to you to know that the City of Tacoma, Department of Public Utilities, Water Division, has been using Crispin Air Valves on its 40 miles of supply line since its inception during the year 1913. Maintenance on these valves has amounted to the replacement of seats and floats occasionally and they appear to be good for another 45 years of service."

Crispin Air Valves have these important advantages—simplified construction, easy accessibility, maximum durability, minimum maintenance and thoroughly efficient operation. The records of the City of Tacoma prove the value of these advantages.

We invite you to write, wire or phone our offices for detailed information on dependable Crispin Air Valves . . . your inquiry will receive prompt attention.

AIR CONTROL VALVES FOR OVER 45 YEARS

multiplex
MANUFACTURING COMPANY
BERWICK, PENNSYLVANIA
Dept. E

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on the insert following pg. 52

Backhoes, Tractors, Loaders

183 Detailed specifications and literature on all that's new in the 1959 Ford line of backhoes, tractors, super-duty loaders, matching equipment and the Fordson power major diesel may be obtained by writing to FORD MOTOR COMPANY, INDUSTRIAL SALES DEPARTMENT, BIRMINGHAM,, MICH.

Reproduces Engineering Drawings

184 The features and accessories of a 105mm photo reproduction system that reproduces almost any size engineering drawing, restores smudged or worn originals to almost perfect legibility, and guarantees distortion-free accuracy are described in *Micro-Master Folder* 25883, available from KEUFFEL & ESSER CO., DEPT. AC-3, ADAMS AND THIRD STREETS, HOBOKEN, N. J.

Paving Equipment

185 Formgraders, form tapers, scratch templates, trailgraders, rollers, push planers, float bridges, floats, aluminum and steel straight edges, pin pullers, lutes and pull brooms are spotlighted in literature received from THE CLEVELAND FORMGRADER CO., 34250 MILLS ROAD, AVON, OHIO.

Designed for Tough Mowing

186 This 4½-hp Imperial riding mower has been field tested on every type of tough mowing job, has proved itself able to climb grades up to 50%, follow ground contours without scalping, cut tough weeds, trim lawns velvety smooth. For full information on this responsive mowing unit, write ARIENS COMPANY, 285 CALUMET ST., BRILLION, WIS.

Street Trees

187 One way to colorfully accent your community and add to its attractiveness is to line its streets with strong, hardy, graceful trees. THE COLE NURSERY CO., PAINESVILLE, OHIO, which assures a dependable supply of 360 varieties of trees, evergreens and deciduous shrubs, has developed four new Honeylocusts of distinctly different characteristics of form, color and growth to meet the landscaping needs of municipalities. Write today for information.

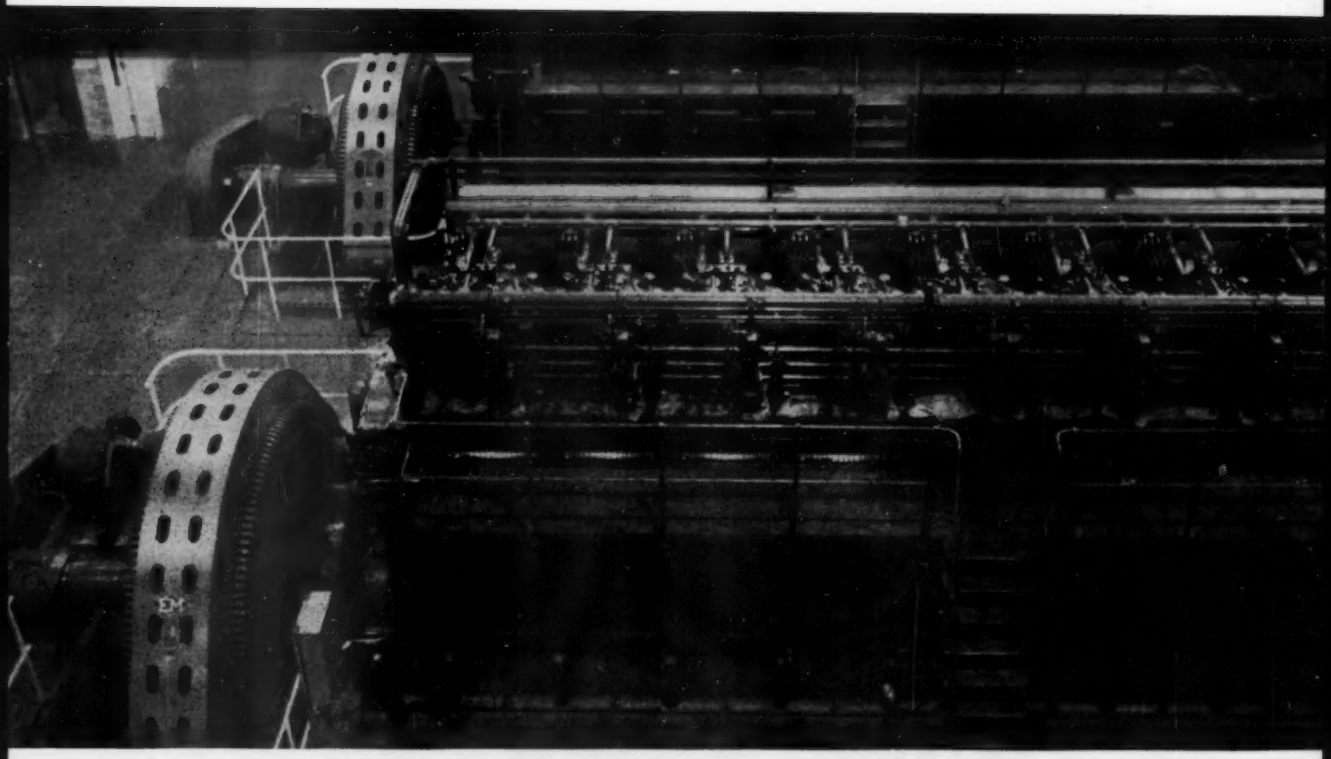
Sign Manual

188 Uniform traffic signs and signals for streets and highways and grade crossing signs are given both graphic and textual presentation in 50-page *Calalog* No. SG-151. For a copy, write on your business letterhead to S. G. ADAMS COMPANY, TRAFFIC SIGN DEPT., 10TH & OLIVE STS., ST. LOUIS 1, MO.

Explains Technical Phases of Electric Generators

189 A new series — "M" — of illustrated pamphlets covering complicated electrical and technical characteristics of engine-driven generating equipment should be of considerable help to both the initiate and expert. Entitled "Onan Power Talks", and written in simple language, these pamphlets are available from D. W. ONAN & SONS INC., MINNEAPOLIS 14, MINN.

(See page 64 for more Bulletins)



Two Hamilton 4800 bhp dual fuel diesels, installed several years ago in the Central Kansas Electric Cooperative, Inc. plant at Great Bend, Kans., are each turning a generator with a net rating of 3100 kw. Fuel consumption currently averages 2.46 mills/net kwh.

HAMILTON-DIESEL-POWERED PLANT

WINS COVETED REA GROUP AWARD

Each year since 1950, the publication *Diesel Progress* —through cooperation of the Rural Electrification Administration—has conducted a contest to ascertain the most efficiently operated internal combustion plant among all plants in the REA group.

The coveted winner's plaque for 1958 in the Division "B" category was awarded to the Great Bend, Kans., plant of Central Kansas Electric Cooperative, Inc. The newest and largest diesels in this highly efficient plant are two Hamilton G-921-SA dual fuel 9-cylinder engines.

The Baldwin-Lima-Hamilton Corporation heartily congratulates the personnel of this plant on its efficiency record.

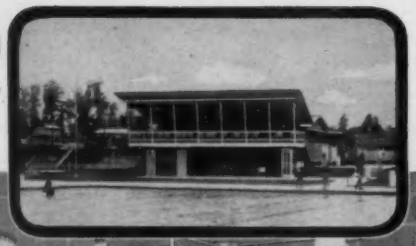
Hamilton Division Hamilton, Ohio

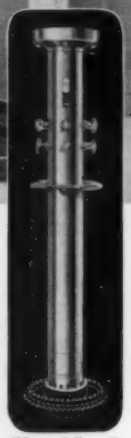
BALDWIN · LIMA · HAMILTON

Diesel engines • Mechanical and hydraulic presses • Can making machinery • Machine tools & general machinery

BALDWIN BLH LIMA-HAMILTON

At the New Swimming Club at Wheaton, Md., You Will Find...





Where stall partitions and curtains are not desired, Shower Columns alone as above provide facilities for 5 or 3 in the same way.

BRADLEY MULTI-PERSON SHOWERS AND WASHFOUNTAINS

This new swimming club, Connecticut Belair, at Wheaton, Md., is another of many now installing Bradley Multi-Person Shower Units.

Where Column is located so all five sprayheads can be used, you have a 5-person shower; if placed in otherwise wasted corner locations you have 2-person units with or without stall-separating panels.

Only one set of piping connections is needed for each multi-person unit. For a 5-person shower, for example four sets of piping connections are eliminated, thus reducing installation costs.

MORE POOLS AND BATHS INSTALL BRADLEYS

You will find Bradley Showers in use all over the country—as this current list shows:—New Municipal Bath House, Rome, N.Y.; Klamath Falls Swimming Pool, Klamath Falls, Ore.; Valier Swimming Pool, Valier, Mont.; Kennewick Swimming Pool, Kennewick, Wash.; Dreamland Swimming Pool, Kenova, W.Va.; Newberry, S.C., Swimming Pool; Biron, Wis., Swimming Pool; Lynwood, Cal., Natatorium; Fairless Hills Swimming Pool, Charlottesville, Va.; Metropolitan Beach, Mt. Clemens, Mich.; Julesburg, Colo., Swimming Pool & Bath House; Gage State Park Swimming Pool, Topeka, Kas.; Nehoora, Wis., Swimming Pool; Public Swimming Pool, Amherst, Mass.; Reedsport, Ore., Municipal Swimming Pool; Callaway Swimming Pool Bldg., La Grange Ga.; Laurinburg, N.C., Pool; South End Swimming Pool, Tacoma, Wash.; Swimming Pool, Moorhead, Minn.; Cent. Welfare & O'Neil Bathhouse, Toronto, Ont.; Swimming Pool & Bathhouse, Edina, Minn.; Craig, Colo., Municipal Swimming Pool; So. Shore Bath House, Devils Lake, Baraboo, Wisconsin.

BRADLEY DUO-WASHFOUNTAINS

For Maximum Sanitary Washing at Belair—6 Bradley faucetless Duo-Washfountains were installed. With foot-control, there are no faucets to touch, no chance of spreading infections. The bowls are self-flushing, preventing collection of unsightly used water.

Our Catalog 5601 has complete specification data—copy mailed on request...BRADLEY WASHFOUNTAIN CO., 2333 W. Michigan St., Milwaukee 1, Wisconsin.

Write for Catalog 5601

BRADLEY *washfountains and showers*

Distributed by Plumbing Wholesalers

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Plastic Pipe for Golf Course Irrigation

190 If you desire information on plastic pipe that is rigid enough to resist soil pressure, flexible enough to follow earth contours, completely corrosion-resistant both inside and out, handles easily, and proves itself well-suited as irrigation pipe for golf courses, write DEPT. USCO, MECHANICAL GOODS DIVISION, UNITED STATES RUBBER, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

New Method of Surface Sealing

191 Complete information on this new slurry-seal method and details on a slurry-seal spreader, which assures thin, even applications of asphalt-sand-water slurry, fills and seals cracks, levels minor depressions and skid-proofs surfaces, can be obtained by writing to TARRANT MFG. COMPANY, 23 JUMEL PLACE, SARATOGA SPRINGS, N. Y.

Fresh Approach to City Mapping Problems

192 Cities large and small can now have up-to-the-minute aerial photo maps for general planning or precise topographic maps for specific engineering projects on a basis that meets their needs and budget. For details, ask AERO SERVICE CORP., PHILADELPHIA 20, PA., for literature on its "Pay As You Grow Plan."

Stops Odors

193 This space deodorizer is safe, nontoxic and nonflammable. It is widely used to stop odors in sewerage disposal plants. Whether used indoors or outdoors it leaves the air odor-free and with a distinctive garden freshness. For details, write AIREACTOR CORP., 271 MADISON AVE., NEW YORK 16, N. Y.

Unclogs Sewer Lines

194 ND-25 loosens debris and settlement in sewers and drains, saponifies and emulsifies greases and oils and digests roots, paper and other material containing a high degree of cellulose. For informative literature, write NATIONAL DISINFECTANT CO., 2417 COMMERCE, DALLAS, TEXAS.

Brushes for Every Use

195 FLOUR CITY BRUSH CO., MINNEAPOLIS, MINN., has just released its 1959 catalog of FLO-PAC brushes for industrial and domestic use. The more than 1000 articles listed within the 120-page booklet are illustrated and thoroughly described. When making your request, specify *Catalog* #211.

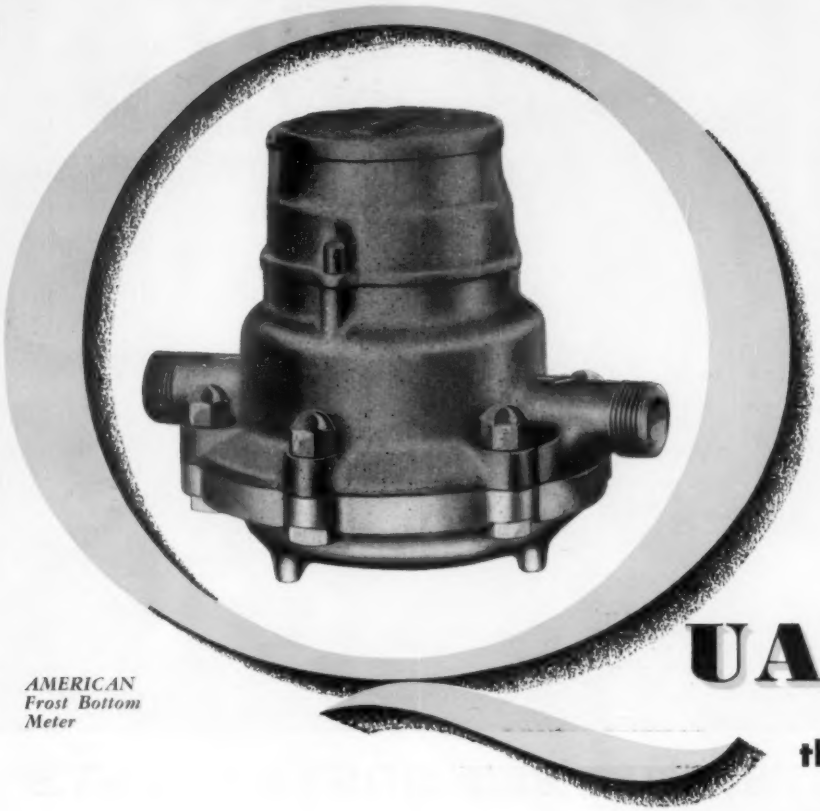
3000-Watt Generators for More Production Power

196 By delivering needed power for floodlights, electric saws, drills and other high-cycle labor-saving tools, Homelite Model 8A generators permit you to accomplish more work in fewer man-hours. These units weigh only 140-pounds, complete with built-in gasoline engine, and are available in three models. For literature, write HOMELITE, DIV. OF TEXTRON INC., 103 RIVERDALE AVE., PORT CHESTER, N. Y.

(See page 67 for more Bulletins)

AMERICAN METERS

HAVE WHAT THE WATER SUPERINTENDENT WANTS



AMERICAN Frost Bottom Meter

QUALITY

that includes

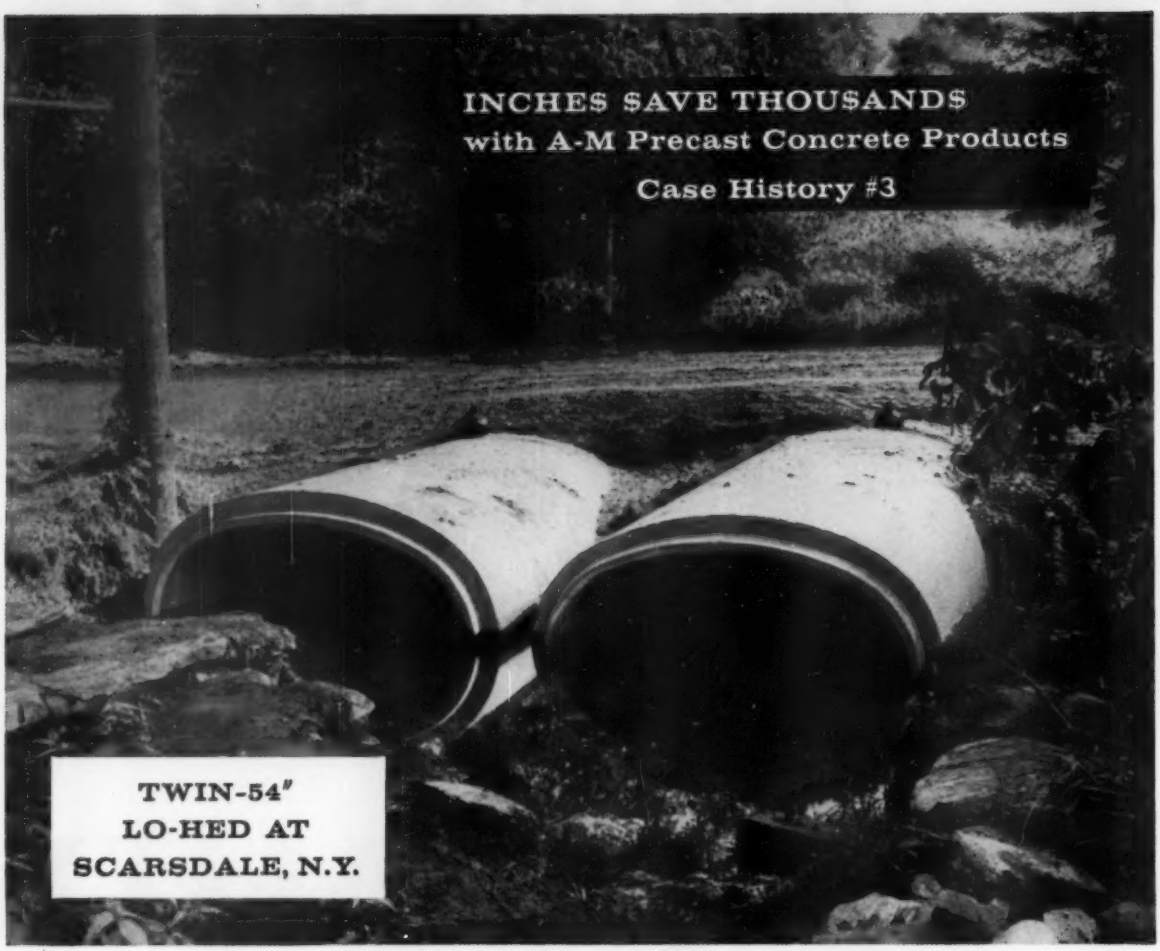
- **WORKMANSHIP**
- **DURABILITY**
- **ACCURACY**

Everyone claims quality . . . finest quality . . . best quality —but like the pudding that is proven in the eating—so the proof of quality in a meter is in the running. This establishes its accuracy, and in continued running for long periods of time, its durability.

Judged on that basis, AMERICAN METERS are unsurpassed! For in operation, the fine workmanship, the excellence of manufacture of AMERICAN METERS are clearly demonstrated. AMERICAN METERS today are built to exceed the accuracy and life of meters built 35 years ago, that are still giving dependable accurate service. Yes truly, AMERICAN is a QUALITY WATER METER.

Quality Control at each manufacturing step insures the accuracy and reliability of American Meters.

BUFFALO METER COMPANY 2902 Main Street, Buffalo 14, N. Y.
INCORPORATED



LO-HED CUTS CULVERT COSTS 3 WAYS

- **INITIAL COST**—two Lo-Hed culverts carry more water than three round pipe lines of the same height—putting every square inch to best possible use.

- **CONSTRUCTION COST**—two Lo-Hed culverts require less excavation, handling and jointing than three or four round pipe lines.

- **MAINTENANCE COSTS**—two Lo-Hed culverts, each with larger unobstructed area, pass more debris, giving yearly bonuses in required maintenance.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Aluminum Walkways

197 These walkways would be assets in any water and sewage treatment plant. They are safe and maintenance-free, never need painting, resist rust and corrosion, provide ventilation. For complete information, write WASHINGTON ALUMINUM, INC., DEPT. 83, BALTIMORE 29, MD.

Keeps Swimming Pools Algae-Free

198 News about a proved algae-killing chemical that keeps swimming pool water clean and clear, and in formulation acts as an excellent disinfectant for swimming gear and locker rooms, has been received from ROHM & HAAS CO., WASHINGTON SQUARE, PHILADELPHIA 5, PA., manufacturer of Hyamine 2389, which controls the common strains of algae found in swimming pools.

Water Storage Facilities

199 Steel reservoirs and standpipes of any required capacity and designed for long life and trouble-free service are supplied rapidly, efficiently and inexpensively by GENERAL AMERICAN TRANSPORTATION CORP., 135 S. LASALLE ST., CHICAGO 90, ILL., which maintains plants, experienced field erection crews and up-to-date equipment at convenient locations throughout the country.

Equipment Lease Plan

200 Under this plan, governmental agencies can lease all kinds of equipment—typewriters, road graders, fire engines, sewage disposal plants, etc.—thus making it possible for them to have up-to-date equipment without making a capital investment. For details write NATIONAL EQUIPMENT RENTAL, LTD., P. O. BOX 165, DEPT. AC, FLORAL PARK, L. I., N. Y.

Compound Water Meters

201 Bronze Case compound meters in 2″, 3″, 4″, and 6″ sizes and Iron Case meters in 8″ and 10″ sizes, unequaled for accurate registration of all rates of flow and with reputations for long and consistent records for performance at minimum cost are discussed in literature available from HERSEY MFG. CO., DEDHAM, MASS.

Quickly Sweeps Streets Clean

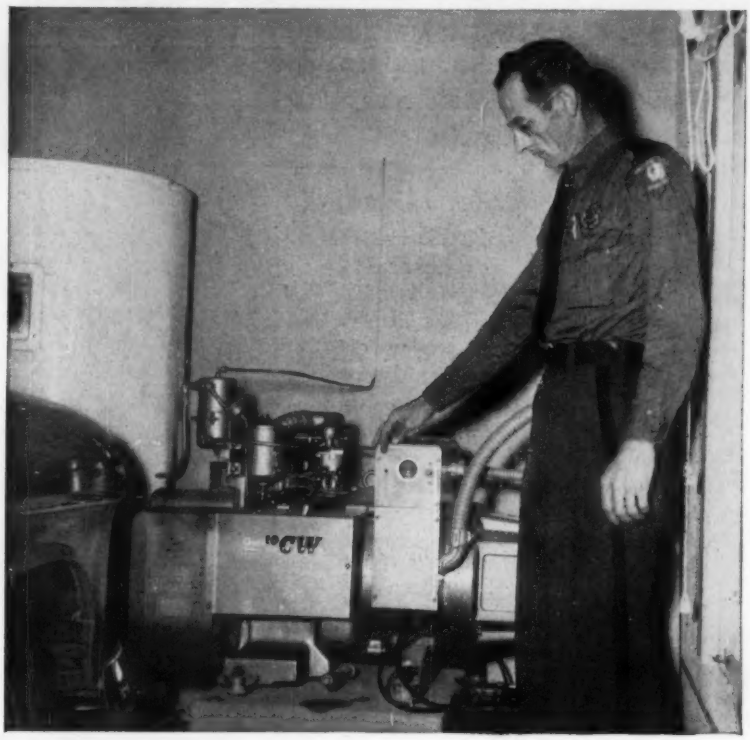
202 *Bulletin* AC-4 discusses the outstanding sweeping performance of the 4-wheel Mobil Sweeper, explains how it saves manpower, reduces deadheading, and why it is low in maintenance. For the full story, write MOBIL SWEEPER DIVISION OF THE CONVEYOR CO., 3260 E. SLAUSON AVE., LOS ANGELES 58, CALIF.

Shuts Out Ground Water, Seals in Sewage

203 When you specify Press-Seal rubber gaskets for concrete sewer pipe, you are assured of faster installation, lower cost, permanent protection against leakage. And there is the right gasket form for every sewerage purpose: oil content, acid content and common sewage. For complete information, write PRESS-SEAL GASKET CORP., P. O. BOX 482, R.R. 6, COVINGTON ROAD, FORT WAYNE, IND.

(See page 70 for more Bulletins)

Onan NEWS REPORT



Onan Standby Electric Plants guarantee power in emergencies

This Onan 10KW emergency electric plant is installed in the community building of *Indian Hills, Ohio.* It not only provides the police department with all the light and power required, but supplies needs of the fire department, too!

When power interruption occurs, the Onan plant starts automatically and supplies current for all essential purposes . . . lights, radio communication, signals, heating system, and other motor-driven equipment.

Dependable Onan emergency electric plants provide electric power for operation of all vital municipal services. In time of disaster, when power interruptions are most likely to occur, emergency power saves lives, protects property, helps to restore and maintain order. Available in sizes from 500 to 200,000 watts; Diesel or gasoline-powered models.

Teletype machines in the Norwalk, Connecticut police department are supplied with power in emergencies by an automatic Onan Standby Plant. Norwalk's 3,500-watt Onan unit also furnishes power for the oil burner, radio, ventilating fans and 60 fluorescent lights.

See your local distributor or write for folder on standby models

D. W. ONAN & SONS INC.

2537 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

Heavy Construction Operators

GO FORD-WARD for greater payload... power..

"Our Ford trucks haul up to a ton-and-a-half more payload per trip"

says William R. Collins, V.P.
William Collins and Sons, Fargo, N.D.

"We switched to Ford trucks in 1951 because we found we could haul 1½ tons more per trip. Now we have 124 Fords, including 80 T-700's. They're economical to operate, too—we get up to 6 miles per gallon. Our drivers like Ford's power steering and peppy 302 HD V-8 engine. We like Fords because we know we can always get Ford parts quickly if we need them. That means our trucks aren't down over one day, even on a major overhaul."

"We trade every two years and find that Ford trucks bring highest resale price"

says John McCormick, Sec.-Treas.
Northern Improvement Co., Fargo, N.D.

"We keep our Ford T-700's in top condition year round, and it pays off. We get a higher resale price when we trade every two years. Fords have the ability to perform under the rugged conditions in our work. Power steering on our tandem dumps makes them easy to handle on-or off-the road.

"Our drivers like Ford's power . . . they get heavy loads under way fast"

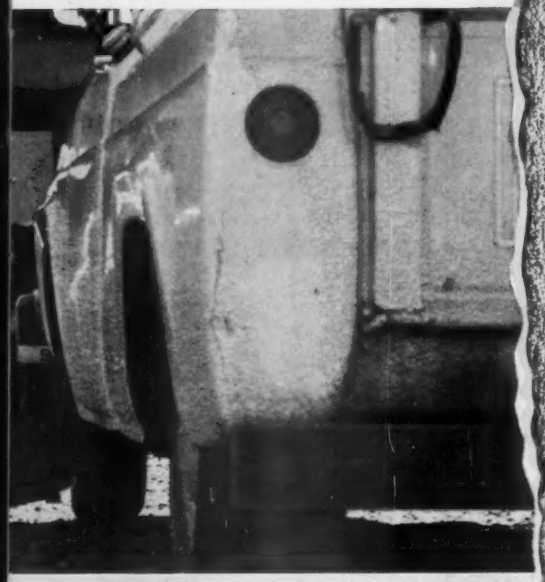
says George C. Wilson, General Superintendent
Schultz and Lindsay Construction Co., Fargo, N. D.

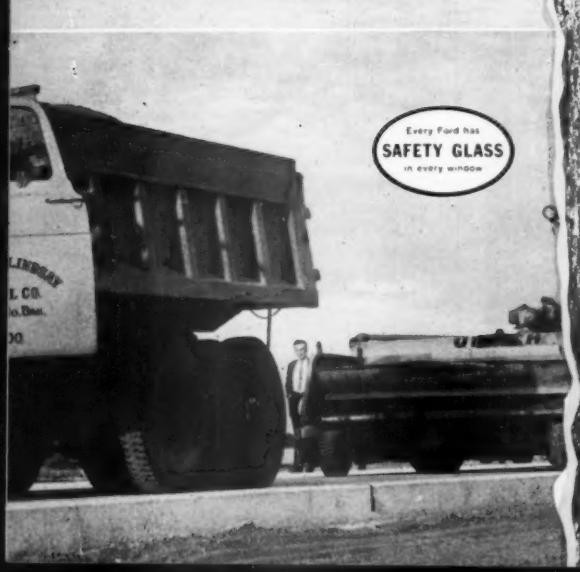
"Ford's HD power in our T-750's gets heavy loads under way fast . . . helps keep us on schedule. And we can haul bigger payloads doing it . . . up to a yard more, legally, every trip. We've never had frame trouble either. They're rugged, durable trucks and if we ever need Ford parts, we can always get them at the nearest town."

FORD TRUCKS COST LESS

LESS TO OWN... LESS TO RUN... LAST LONGER, TOO!

..resale value!





NOW!
CERTIFIED PROOF
FORD TRUCKS
COST LESS

All tests conducted and results
CERTIFIED
by America's foremost independent automotive research organization*
*NAME AVAILABLE ON REQUEST
Send inquiry to: P.O. Box 2687 Ford Division, Ford Motor Co. Detroit 31, Michigan

'59 Ford Pickups Win Economy Showdown U.S.A.

—average 25.2% better gas mileage!

Impartial tests of the 1959 pickup models of all six makes prove conclusively that Ford's ½-ton pickups equipped with Short Stroke Sixes are the economy champs for '59.

HOW TESTS WERE MADE

Standard six-cylinder models of the six leading half-ton pickups first were put through exhaustive road trials. All '59 trucks—Ford and competitive—were bought from dealers, just as you would buy them. After at least 600 miles break-in, all were brought up to manufacturer's recommended specifications.

The trucks were then tested – by America's leading independent automotive testing firm—at constant speeds of 30, 45 and 60 miles an hour. Next came stop-and-go tests, ranging from moderate city traffic to normal retail delivery operation. Acceleration rates were carefully timed in each gear to insure accurate results for all makes.

HOW NEW '59 SIXES RATE IN GAS MILEAGE						
'59 FORD SIXES GIVE	25.2% more miles per gallon than Make "C"	31.1% more miles per gallon than Make "I"	9.6% more miles per gallon than Make "G"	42.6% more miles per gallon than Make "D"	22.0% more miles per gallon than Make "S"	25.2% more miles per gallon than the average of all makes

The '59 Ford Sixes, *in every test*, averaged more miles per gallon than every other make! Combining all tests, the '59 Fords led the average of all other '59 pickups by 25.2%.

WHAT'S THE SECRET?

How can a '59 Ford Six make four gallons do the work of five in other trucks?

First, of all pickup Sixes, only Ford has modern Short Stroke design. This new type of engine is basically far more efficient than long-stroke Sixes of other pickups. Example: Ford's Six delivers more usable horsepower than any other pickup Six.

Second, to this modern engine Ford has added a new economy carburetor. By metering fuel more precisely in both low- and high-speed ranges, Ford's new carburetor boosts gasoline mileage in every type of driving. And Ford's *Economy Carburetor* is *standard at no extra cost.*

Your Ford Dealer now has the complete report of Economy Showdown U.S.A. Why not call or visit him today and get the whole story firsthand?

Schramm 125 cfm Heavy Pneumatractor is an air compressor with tractor features, including front end loader and backhoe. Pictured here is one-yard loader being used to fill truck. High lift clears 9' 6" side of dump truck; full hydraulic dumping. Available: **gasoline or diesel.**

HERE'S AN AIR COMPRESSOR THAT'S DIFFERENT!

Schramm Heavy Pneumatractor is a 125 cfm compressor — with heavy tractor features — does all kinds of jobs for municipalities

Look closely at competitive air compressors today. You'll find designs are similar, engines are similar, ratings are similar, costs are similar. Now, at last, there's an air compressor that's different—Schramm Pneumatractor—self-propelled 125 cfm compressor with tractor accessories. It's the "do-all" for any municipality, because it operates air tools, power shovels, loads, breaks out concrete, trenches, grades. There's no end to the jobs it can do—yet its cost is much lower than the cost of a tractor, loader, back-hoe *and* air compressor.

Just imagine how Pneumatractor could save time for you . . .

Always Ready for Work No delays, no crews tied up; Pneumatractors go where needed—start work at once.

Eliminates a Truck The operator simply climbs into the seat and drives a complete 125 cfm compressor from job to job. Pneumatractors go where ordinary towed portables can't—do the work of an extra tractor.

Next time you plan to buy an air compressor *or* tractor, investigate the compressor that's different from all others—Pneumatractor. See your local Schramm Dealer, or write for your free copy of Catalog 5740.

See the Yellow Pages for local Sales, Service and Rental of the complete line of Schramm Pneumatractors.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

603 North Garfield Ave. • West Chester, Pa.

Schramm Air Tools—the tools with extra *guts*. More drop forgings are used in Schramm tools than in other lines. Result: greater strength and resistance to breakage.

There's no end to the jobs Pneumatractor can do. Here, tilting angle blade is used for gutter and shoulder grading.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Tractor-Powered Rotary Mower

204 Whether lawn mowing, leaf mulching or controlling weeds, the combined mowing shredding action of the multi-job Model 80 makes fast work of grounds maintenance at low cost. Details on this machine and nearly 30 other models may be obtained from WOOD BROTHERS MFG. CO., 54904 S. 4th ST., OREGON, ILL., pioneer in the development of rotary mower equipment.

Better Sludge Disposal

205 Flash-dried, sterile, neatly packaged sludge makes an excellent soil conditioner for lawns, golf courses, parks. Its sale eliminates the need for lagoons, drying beds, and ash disposal, produces revenue for the treatment plant. The C-E Raymond permits both drying and incineration, separately and together, in any proportion. For details, write COMBUSTION ENGINEERING, RAYMOND DIV., 1315 N. BRANCH ST., CHICAGO 22, ILL.

Encourages Litter-Free Corners

206 When an Expanded metal refuse basket is posted at a street corner that area is usually impressively litter-free. This is because these attractive, Saf-T-Mesh constructed receptacles invite use. For informative literature, write WHEELING CORRUGATING CO., WHEELING, W. VA.

Pigments that Step Up Metal Protection

207 Six M50 pigment paints, each recommended for steel highway structures, each with rust inhibition, weather resistance and color in primer, intermediate and finish coat, are thoroughly discussed in a 24-page booklet, "Defense In Depth," available from NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y.

Locates Valve Boxes

208 An improved Aqua locator now spots valve boxes with greater speed more economically. This useful tool operates on magnetic action, adjusted to particular geographical locations to assure accurate results. It is compact, rugged and convenient to use. For details, or a 15-day free trial, write AQUA SURVEY & INSTRUMENT CO., 2010 LESLIE AVE., CINCINNATI 12, OHIO.

Reference on Electric Blasting

209 Users of explosives may obtain a free copy of this pocket-size, 60-page "Handbook of Electric Blasting," for novice or experienced blaster, which tells the whys and hows of effective electric blast detonation. When making request, write DEPT. HR, EXPLOSIVES DIV. ATLAS POWDER CO., WILMINGTON 99, DEL.

New Trenching Tool Slashes Costs

210 If you've ditches to dig for service lines, street lighting or traffic signal installations, sprinkler systems for golf courses, etc., you'll be interested in literature on the newest model Ditch Witch, manufactured by THE CHARLES MACHINE WORKS, INC., P. O. BOX 66, PERRY, OKLA. This unit trenches 3 to 8 inches wide, 2 to 4 feet deep for as little as 2c a foot.

(See page 73 for more Bulletins)

Are you wasting $8,000 per truck per year

by not having HYDRO E-Z PACK on the job?

You get one-man operation in practically every waste disposal situation with Hydro E-Z Pack disposal units. Because E-Z Pack takes everything, compacts it better, and hauls more, you cover the route faster, pack the load en route, make fewer trips to the dump. No need to break down cartons, trash and tree limbs because of E-Z Pack's wide openings.

You get other cost-cutting advantages, too. E-Z Pack requires a smaller, less expensive chassis than most units; has lower maintenance costs, is the fastest unloader in the field. Add these all together and you can be saving up to $8,000 or more per truck per year.

Are you making money on waste . . . or wasting money you could be making? Ask for a Hydro E-Z Pack demonstration on your toughest route–and analysis of your waste disposal operation. We'll send a free copy of "The Big Squeeze," too. (No obligation, of course.)

USERS' REPORTS

Here are excerpts from letters showing what Hydro E-Z Pack has done for a few users:

H.W.J., City Manager, Florida:
"We haul in one E-Z Pack load what formerly required seven large open truck loads."

C.J.M., Waste Paper Co., Ohio:
"Handles with ease what we formerly loaded in 32-foot van body. One E-Z Pack load equals four 14-foot stake body loads. In reducing bulk, has no competitor."

C.E.C., Disposal Co., Illinois:
"On one account for one month, we made 34 loads where we made 102 loads previously; saved on mileage, gas, oil, truck and tire wear, labor; came up with actual monthly savings of $227.20 on this one account alone. Figure one E-Z Pack replaces three other-type units."

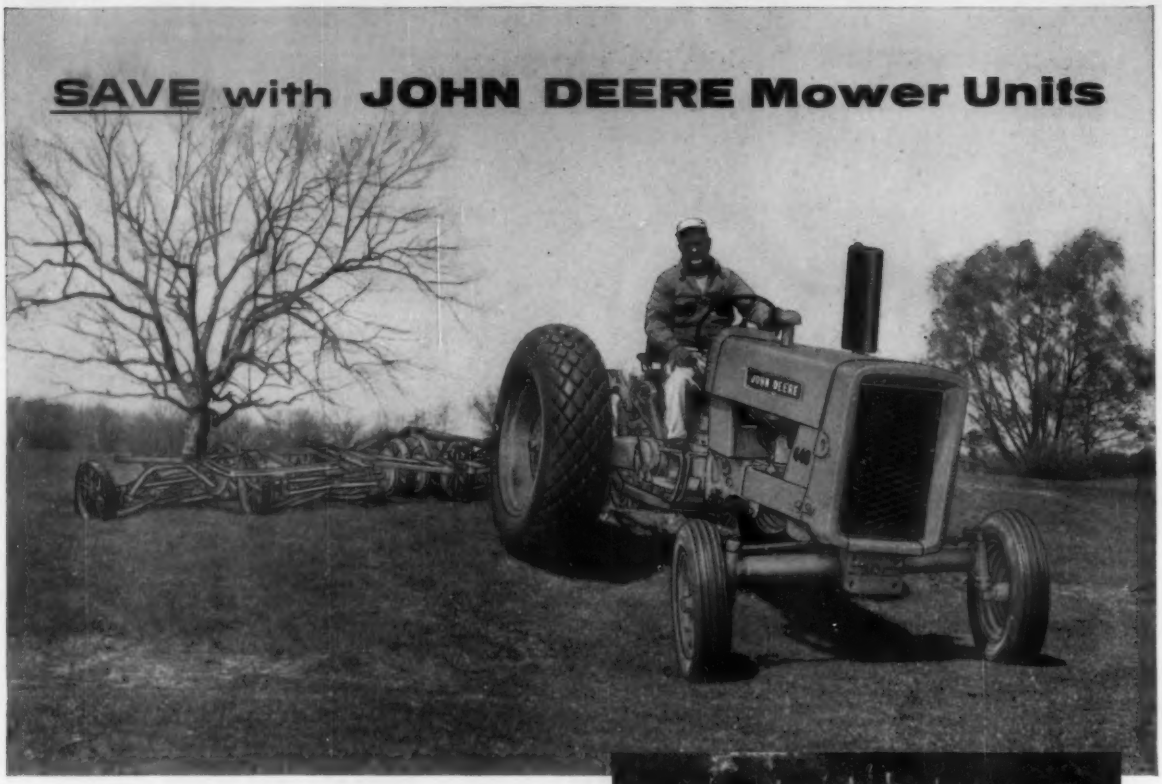
Two-City Comparison (California)
22,000 dwelling units
9 men—9 E-Z Packs
22,000 dwelling units
42 men—2 garbage trucks,
12 rear-loader packers.

Hydro E-Z PACK

HYDRO E-Z PACK

HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., DEPT. AM-459 GALION, OHIO

By the Acre or by the Mile...



MOWING goes fast on even the toughest jobs with a sure-footed John Deere utility tractor. These units have the flexibility, low center of gravity and handling ease that pay off in real time savings.

Time-proved design features, plus the latest engineering advances, mean savings in day-to-day operating expense and maintenance costs as well.

Complete Equipment Selection

Your John Deere dealer offers mowing equipment for every need—hydraulically operated cutter-bar mowers for the roadway, powerful rotary brush cutters, and reel-type gang mowers for parks and golf courses.

To further increase versatility of John Deere Industrial units, you can choose from hydraulic loaders with crane and fork-lift attachments.

See your John Deere Industrial dealer today for the information you need.

JOHN DEERE Industrial Tractors and Equipment

JOHN DEERE INDUSTRIAL DIVISION • MOLINE, ILLINOIS

YOU NEED *These catalogs*

Write directly to the address given or use the Post Card on the insert following pg. 52

Adds "Bounce," Removes "Bump and Bruise" from Playground Surfaces

211 Saf-Pla, a rubberized playground surfacing material, greatly reduces the number and severity of cuts and bruises children suffer in falls on hard, abrasive or unsurfaced play areas. For complete information on this resilient, protective covering, write U. S. RUBBER RECLAIMING CO., INC., BOX 365, BUFFALO 5, N. Y.

Hydraulic Pipe Bender

212 With this compact hydraulic bender one man can quickly make on-the-spot bends in conduit or steel, aluminum, and stainless pipe. A 90° bend is made with one ram stroke, one setting. There are three models to select from to meet exact requirements of every job. Full details may be obtained from GREENLEE TOOL CO., 1779 COLUMBIA AVE., ROCKFORD, ILL.

Cold-Patching Streets and Roads

213 Instructions on how to repair streets and roads by the cold-patch method are given in a 24-page, pocket-size booklet. Photographs illustrate procedure; tables give recommended quantities of asphaltic material and aggregates used. For a free copy, write THE TEXAS CO., ASPHALT SALES DIV., 135 E. 42ND ST., NEW YORK 15, N. Y.

Pumps for Septic Tank and Sewage Applications

214 Literature on two new compact submersible pumps, engineered for septic tank and sewage applications and featuring nonclogging 2-vane impeller, special 1½" openings in the pump screen, cast-bronze housing and powerful pumping capacity, is now available from KENCO PUMP DIVISION, 1307 OBERLIN AVE., LORAIN, OHIO.

Nonslamming Check Valves

215 Check valve slamming causes leakage in pump discharge lines, throws pipes out of line, and can cause serious damage and service interruption. One way to insure against this is to install nonslamming check valves with adjustable spring tension. For a catalog on the subject, write THE LUDLOW VALVE MFG. CO., INC., TROY, N. Y.

Aluminum Bridge Railings and Components

216 Engineering information and installation data on a complete line of aluminum bridge railings and components is given in a 24-page illustrated brochure titled "Bridge Railings and Components." For a free copy, write on your business letterhead to KAISER ALUMINUM & CHEMICAL SALES, INC., DEPT. NR-27, 919 N. MICHIGAN AVE., CHICAGO 11, ILL.

Dry Chemical Feeders

217 A 16-page bulletin on volumetric extrusion-type dry chemical feeders discusses the construction, operation and application of Infilco's E Feeders. Dimensional planographs of all sizes of this equipment for either manual or automatic operation in proportion to flow, pH, etc. are included; ranges of feed for various chemicals are listed. For *Bulletin* 215, write INFILCO INC., TUCSON, ARIZ.

(See page 74 for more Bulletins)

BRAND NEW Barricade Flash!

the *Big Beam* TRANSISTA FLASH®

Model 410T

- **Transistor type, heavy duty for long, dependable life.**
- **No moving parts to get out of order.**
- **Two-directional head or 360° dome type Fresnel.**
- **Electronic flashing mechanism weatherproofed. Telescoping top and rubber gasket make battery case completely weatherproof.**
- **Acid-proof plastic liners prevent interior case corrosion.**

TRANSISTA FLASH produces approximately 2000 hours of continuous flashing from two standard 6-volt batteries, available anywhere. Provided with a concealed, tamper-proof switch operated from outside of case. Equipped with bracket for attaching to barricade. Lens or Fresnel supplied in either amber or red plastic—specify color. Flash frequency is approximately 72 times per minute. Lamp is finished in yellow baked enamel.

Model 418T—with dome type Fresnel.

Model 417T—7 inch head. Otherwise, same as Model 410T.

No. 433 Barricade—All metal, strong, stable on any surface. Has angle iron construction, closed ends.

Big Beam—makers of explosion-proof lamps, emergency lights, hand lamps and flares. 8393

U-C-LITE MFG. CO. 1067 West Hubbard Street Chicago 22, Illinois

Export Department: 201 N. Wells St., Chicago 6, Ill. Cable Address: ENOTS
In Canada: Bernard Marks & Co. Ltd., 70 Claremont St., Toronto 3, Ontario

Look what the M-B PACKER eliminates!

Simple design enables you to haul more tonnage at lowest cost

- LESS MAINTENANCE
- LOW OPERATING COST
- FEWER PACKING CYCLES
- MORE THOROUGH COMPACTION

Put a simply designed M-B Packer on your routes and you eliminate all the trouble and extra expense associated with hydraulic refuse collection bodies. A simple, powerful cable driven packer plate thoroughly compacts all types of refuse and garbage. The absence of heavy, complicated hydraulic mechanisms gives you a body that weighs less per cubic yard of capacity . . . one that can be mounted on smaller, less expensive trucks. Operation is simple, maintenance cost is negligible and production time on the route is increased. Compare the M-B Packer from every angle, then call your distributor for a convincing demonstration. M-B Corporation, New Holstein, Wisconsin.

Easy Loading of Bulky Objects

Huge crates, boxes, cartons, barrels can be loaded quickly and without pre-crushing.

Big Loads Push Out Easily

At the dump or incinerator the full-pack load is pushed out the rear without raising the body. It's simple, foolproof, safe!

MUNICIPAL EQUIPMENT SINCE 1907

M-B CORPORATION NEW HOLSTEIN WIS.

PACKER BODIES

SWEEPERS

LINE MARKERS

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Small-Unit Sewage Treatment for 20 to 5,000 People

218 *Bulletin* 135-A discusses the Rated-Aeration process, described as the purification of liquid sewage by aeration and the reduction of sewage solids by aerobic digestion in the same tank at the same time. This combination treatment is said to be odor-free, nuisance-free and low-cost, and to effect a high percentage of BOD reduction. Write CHICAGO PUMP CO., 622 DIVERSEY PARKWAY, CHICAGO 14, ILL.

Brings Golf Courses Up to Par

219 Liquid Gro-Green with Foliage Dietene will give fairways thicker, more velvety growth, make greens richer, more enduring. It may be applied through sprinkler system or with regular sprayer, and may be mixed with insecticides or weed killer to save time and money. For informative literature, write H. D. CAMPBELL CO., ROCHELLE, ILL.

Concrete Groover and Joint Sealing Machine

220 The literature received from WINDSOR MACHINERY CORP., 85 GRASSMERE AVE., ELMWOOD 10, CONN., which announces this machine, its method of operation and scope of work, points out that it will economically answer all joint, grooving, widening, and cleaning problems, regardless of width or depth, for cement or bituminous concrete.

Flashes Hazard Warnings

221 Porto Safety Flasher, designed for both emergency and nonemergency use by municipal law enforcement agencies, utilities and civil defense groups, gives 70 clear warning flashes per minute for 100 continuous hours. It operates on 4 standard flashlight batteries, weighs 4 pounds and folds to a carrying length of 26½ inches. For literature, write PHILLIPS MFG. CO., INC., P. O. BOX 2219, WICHITA 1, KANS.

Aluminized Chain Link Fence Fabric

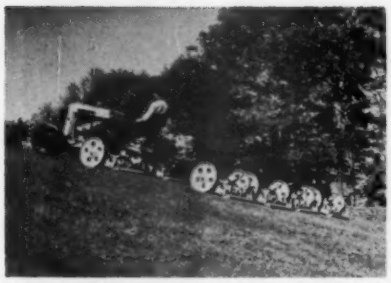
222 An information-packed folder discusses chain link fence which combines the strength of steel bolstered by the weather resistance of aluminum coating. Styles, gauges, construction features, heights, etc., are listed along with typical installation photographs. For your copy of *Bulletin* DH-16B, write PAGE STEEL AND WIRE DIV., AMERICAN CHAIN & CABLE CO., INC., MONESSEN, PA.

Guards Against Rust and Corrosion

223 Radi-8 is a new device for ending corrosion, rust and pitting of radiators and engine blocks of cars, trucks, bulldozers and other municipal construction equipment. It does this by acting as an ion exchange, protecting metals by restoring their electron balance and taking onto itself all corrosive action. For literature, write RADI-8, 2501 VIRGINIA ST., SANTA MONICA, CALIF.

Best on the turf by ANY test!

WORTHINGTON Model "F" Tractors



More lugging power with the Model "G". This rugged tractor pulls 9-gang units up hills that other tractors can barely climb with 7-gang mowers. That's because the Model "G" is geared properly for mowing.

Here's a mowing tractor that defies comparison...the Worthington Model "F" Tractor. *Test it today on your own grounds!* See how this unique tractor cuts the grass before any wheel can mat it down. Out-front mowers reduce the width of overlap... *cutting more acres per hour!*

The "F" is available with Fairway or Blitzer mowers. Either type may be used with "Wing-Lift" control that makes the "F" a versatile mowing combination. With a choice of 3-, 4-, or 5-gang capacity, the "F" can cut in areas usually mowed with power-mowers. Try cutting right up to an obstruction, lift a wing unit 'till you clear, then quickly lower it. Saves hours of hand trimming.

Here's a mowing tractor that's the finest available for large area grass maintenance. *Put it to the test on your own turf* at your own convenience. Ask for a NO OBLIGATION demonstration today!

WORTHINGTON MOWER COMPANY

STROUDSBURG, PENNSYLVANIA

Subsidiary of Jacobsen Manufacturing Co., Racine, Wisconsin

The most complete line of large area grass maintenance equipment in the world!

9-046-1

Safest on side hills. Worthington Model "G" Tractor and sickle bars can mow on hillsides as steep as 36° with complete safety to the operator. Eliminate the "upset" accidents of high wheel tractors.

WORTHINGTON MOWER COMPANY
Stroudsburg, Pennsylvania

☐ Please give me information on NO OBLIGATION demonstration.

☐ Please send literature.

Name _____

Address _____

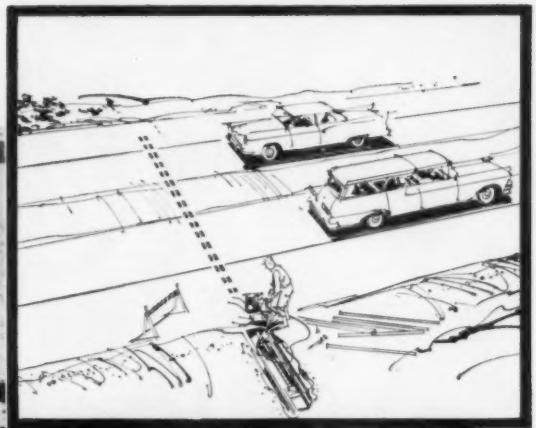
City _____ Zone _____ State _____

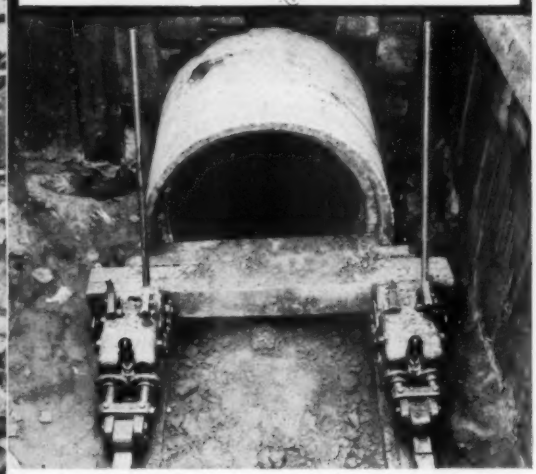
wherever pipe must go underground

Cut job time and costs to a fraction

with a Greenlee Pipe Pusher

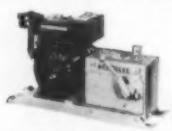
Here's the fast, easy way to install pipe and ducts under streets, walks, tracks, lawns, floors. Model No. 790 GREENLEE Hydraulic Pipe Pusher (left) with power pump pushes ¾" - 4" pipe about two feet per minute. A small ditch accommodates the pusher — streets and other property remain undisturbed. Costly tearing up, tunneling, filling, repaving are eliminated. The GREENLEE Pusher is a compact unit, simple to transport, set up, and operate. Hand or power-pump operated. Two models: No. 790 for ¾" - 4" pipe; No. 795 for pipe over 4", concrete sewer and corrugated ducts. See your supplier or write for descriptive literature.





Two No. 795 Pushers in twin setup pushing large concrete sewer pipe under tracks.

OTHER GREENLEE TIME SAVING TOOLS TO SPEED YOUR JOBS, CUT COSTS



High-pressure Power Pump for operating GREENLEE Hydraulic Pipe Pushers, Pipe Benders, and other hydraulic rams and jacks.

Hydraulic Pipe and Conduit Benders for ½" - 4" sizes. Lightweight, portable, one-man-operated. Full 90° bend with one ram stroke!

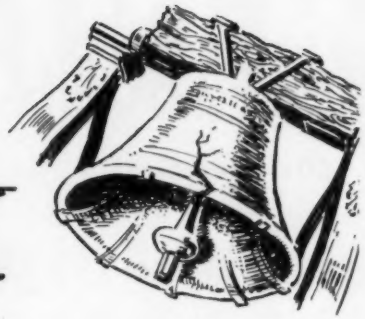
TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE TOOL CO.

1780 Columbia Ave., Rockford, Illinois

PHILADELPHIA, PA.*



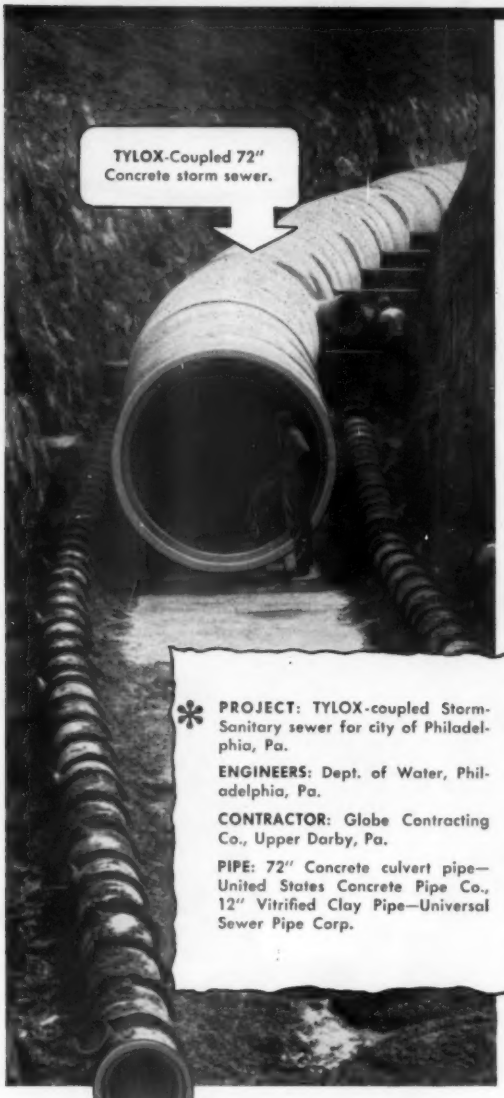
chooses

TYLOX

RUBBER
PIPE GASKETS

TO

- ***PREVENT INFILTRATION***
- ***WHIP DETERIORATION***
- ***REDUCE PIPE-LAYING COSTS***



* **PROJECT:** TYLOX-coupled Storm-Sanitary sewer for city of Philadelphia, Pa.

ENGINEERS: Dept. of Water, Philadelphia, Pa.

CONTRACTOR: Globe Contracting Co., Upper Darby, Pa.

PIPE: 72" Concrete culvert pipe—United States Concrete Pipe Co., 12" Vitrified Clay Pipe—Universal Sewer Pipe Corp.

For its new combination storm-sanitary sewer shown here under construction, the city wanted long-lasting, low maintenance lines—built within the budget. Engineers wanted leak-proof lines that would **stay** leak-proof. Contractors wanted fast pipe jointing to help offset high construction costs. Here's how the choice of Tylox Rubber Gaskets helped meet all three requirements efficiently and economically:

1—**TYLOX** Gaskets have **seven** sealing ribs that "pack" pipe joints tight by compression. Natural resilience of the rubber **keeps** the seal watertight. Sewage treatment costs are reduced, and root and sediment problems are prevented.

2—**TYLOX** Gaskets speed pipe laying through fast assembly, and by eliminating trench work delays . . . mud and water can't slow up work, and laid line may be backfilled immediately. Installation costs are reduced.

3—**TYLOX** Gaskets are made of rubber specially compounded for immunity to sewage and industrial waste acids. Under ground and under compression, TYLOX outlasts the pipe itself.

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It contains engineering data and shows typical TYLOX installations the world over. Read why TYLOX was specified, and take advantage of TYLOX on your next pipe project.

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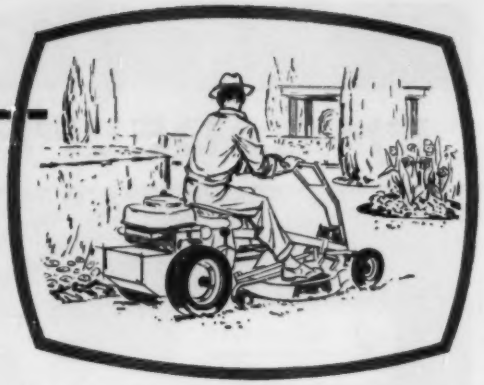

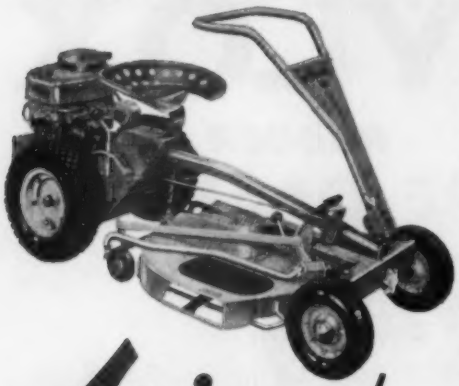

No other riding mower on the market equals the Ariens IMPERIAL for easy, fingertip operation . . . power to climb grades up to 50% . . . rugged construction that assures long, dependable service! Its 26-inch "Flex-N-Float" rotary mower flexes and floats in every direction to follow every ground contour without scalping . . . trims lawns velvety smooth . . . cuts tough weeds . . . climbs uphill, downhill, quartering with full stability . . . has 22" inside turning radius.

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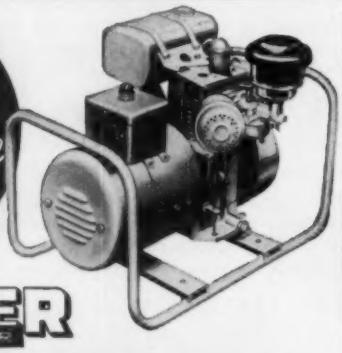

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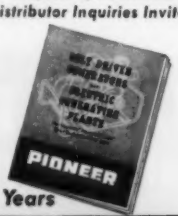

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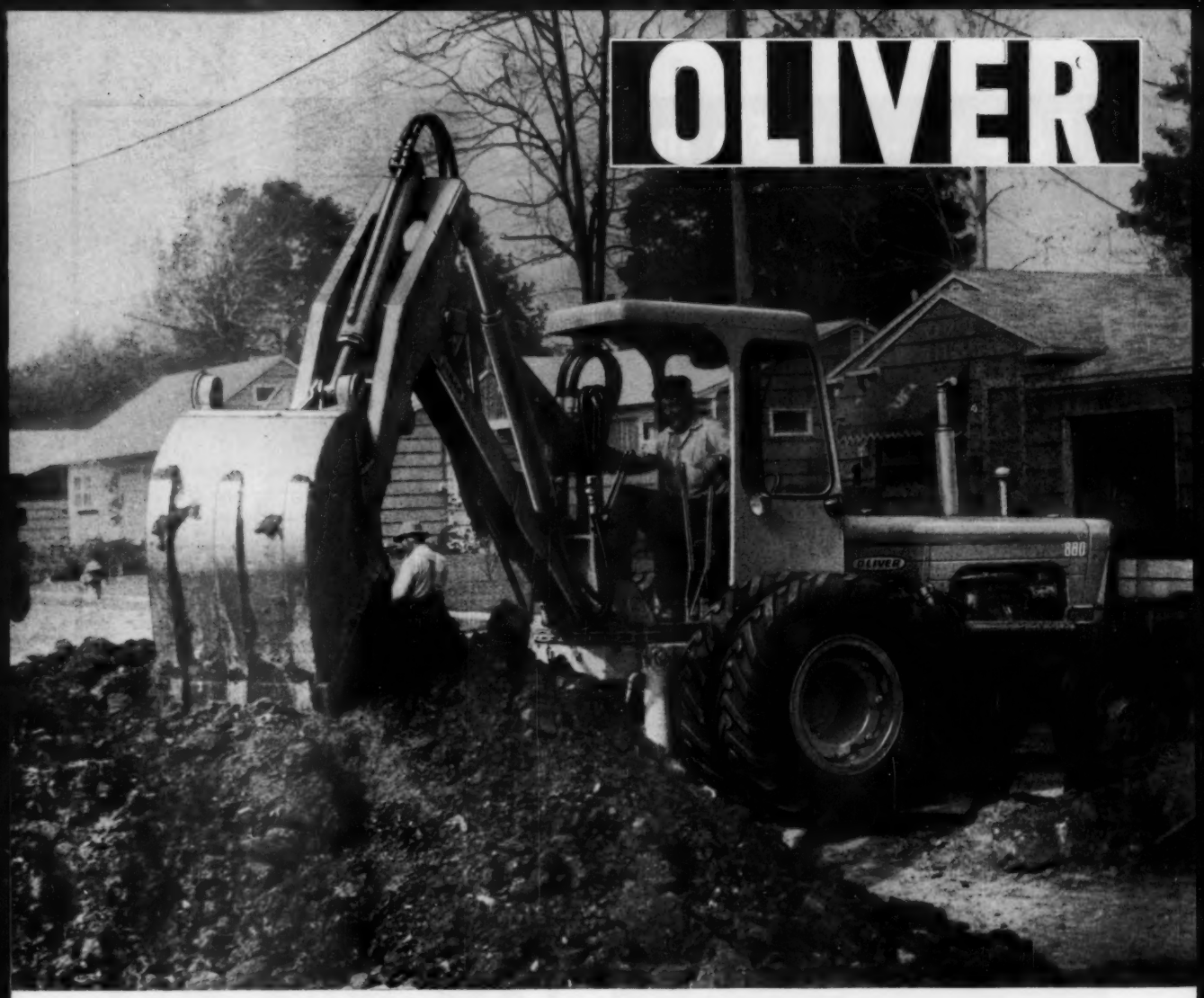

75% PRODUCTION BOOST WITH OLIVER 80-HT

—says New York contractor

The Oliver 880 tractor can also be equipped with a factory-matched 1-yd. bucket—making it a true heavy-duty loader. This unit is highly mobile, with travel speeds from 2 to 17 m.p.h. Gas or diesel power.

When this Oliver Model 80 Hydro-Trencher "took over" the job of digging 50-foot laterals in the rocky shale of Staten Island, Patsy Iaizzo, local contractor, happily noted two important benefits: 1. An immediate 75% increase in production over any of the three trencher combinations that he had been using. 2. A saving of at least $90 per month in fuel alone.

Savings like this are common among owners of this combination —the Oliver 880 tractor equipped with the Model 80 trencher. The ½-yd. bucket digs and loads to 12 feet. The boom swings 180° and the dual-circuit hydraulic controls allow raising or lowering the bucket while swinging. Result: faster work cycles. Now municipalities, utilities and contractors can rip out pavements, dig in hardest soils (even frozen ground)—and do these jobs with a unit that can travel anywhere on busy streets.

Your dependable Oliver distributor will gladly demonstrate—on your job. Call him today or write for literature.

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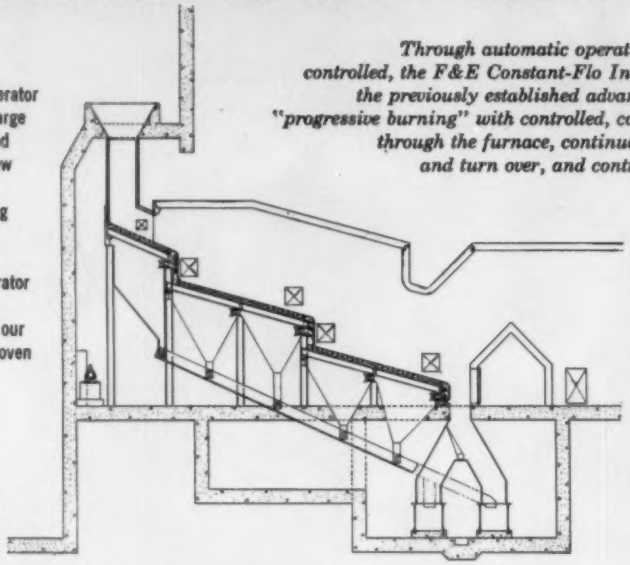
Companion Stoker—F&E Standard Incinerator Stoker

In addition to the F&E Standard Incinerator Stoker for batch charge plants, the Flynn and Emrich Company now offers for those municipalities calling for "Constant-Flo" operation, the F&E Constant-Flo Incinerator Stoker, using the latest application of our already tried and proven F&E Incinerator Stokers.

Through automatic operation, electronically controlled, the F&E Constant-Flo Incinerator Stoker combines the previously established advantages of F&E "progressive burning" with controlled, constant flow of material through the furnace, continuous agitation, break up and turn over, and controlled residue disposal.



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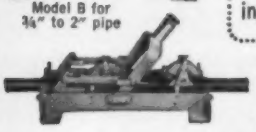
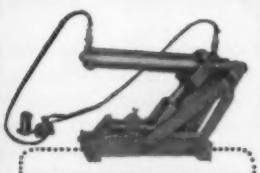
gives you continuous action...
No Resetting of Grip!





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The Trojan combines pushing and pulling operations in one machine—eliminates all time-killing resetting of grip—keeps pipe continuously moving. Does the job at lower cost—in far less time.

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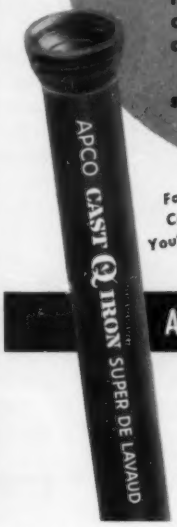
For water, gas and sewage.



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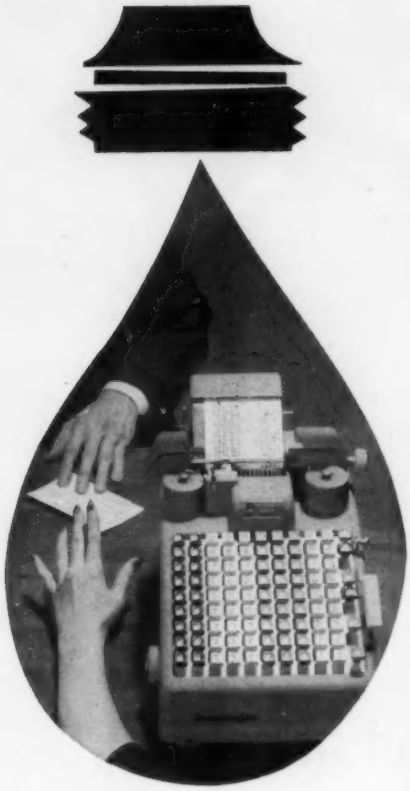

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Bills get out on schedule always, and receipts are properly processed on the spot. Operations are speeded, revenue intake protected all along the line.

For a demonstration without obligation just call our nearby branch office. Or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.

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. . . and *without obligation to you*, a qualified representative will arrange a prompt demonstration of the fastest, most economical chipper in the world.

Then you can see for yourself how aggressive is the new power unit of ASPLUNDH CHIPPERS; how it hungers for great loads of bulky brush; how easily it consumes limbs of 6" diameter.

And remember, the efficiency and economy of the completely safe, simply designed ASPLUNDH CHIPPER has been *proven in service* by the largest tree company in the world.

You will see, in demonstration, that an ASPLUNDH CHIPPER is, by far, the best buy in chippers on the market today.

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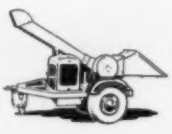

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Accurate spread depth is controlled by the exclusive "floating" strike-off bar with new crown adjustment, mounted on runners independent of the roller and hopper.

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St. Paul installing 7½ mile steel main

Welding a joint for the coal-tar-enamel coated and wrapped pipe: It is being supplied by Bethlehem Steel in 40-ft lengths. Contractor is Ashbach Construction Co. Consulting engineers: Black & Veatch. St. Paul, Minnesota Board of Water Commissioners: Milton Rosen, President; Leonard N. Thompson, General Manager.

They do things in a big way in St. Paul, Minn. Back in 1920 they embarked on a 5-year, $5½-million waterworks improvement program. In 1958 they began another major project, totalling $2½ million. Tar-enameled steel pipe, 5 ft ID, was selected for both projects.

The old riveted main, approximately 8000 ft long, is still on the job, giving excellent service after 35 years of constant use. The new main, about 41,000 ft long, is of modern welded construction. Even the girth joints are welded, making each portion of the line, in effect, a continuous length of pipe—completely leak-free.

The project, begun in 1958, is scheduled for completion in Fall fo 1959, allowing for a shut-down during the winter months.

Every length of steel pipe is hydrostatically tested in the shop, usually to twice the working pressure, in accordance with AWWA specifications (C-201, Sec. 3-5, 4). And this test is conducted at no extra cost to you! For more information contact the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

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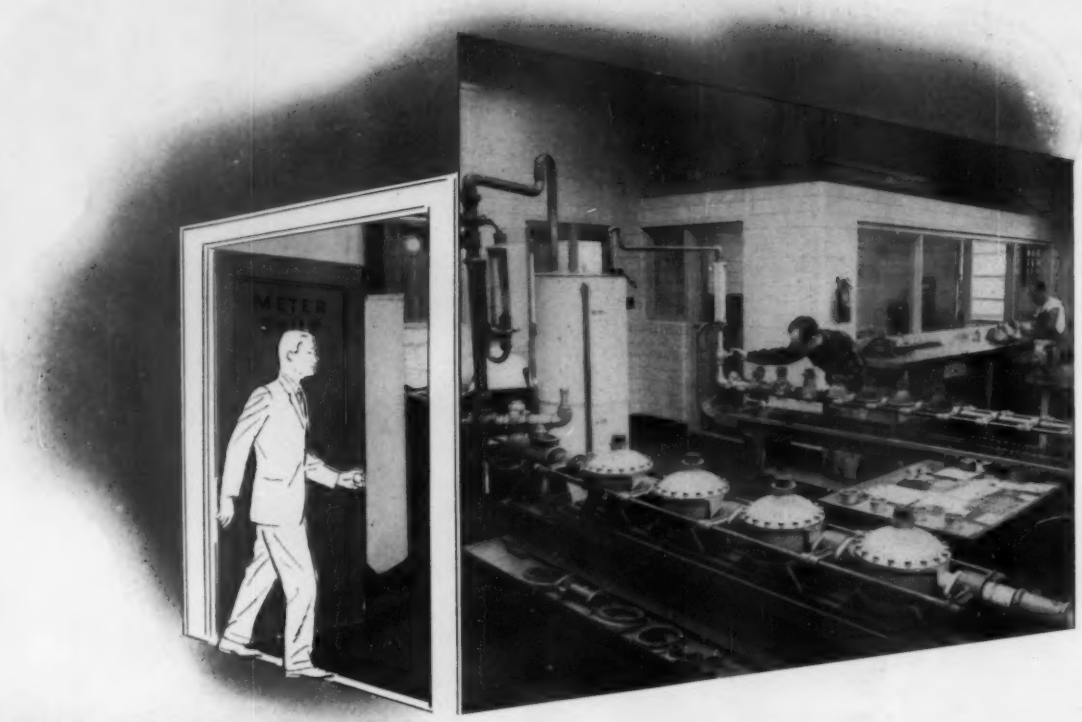

OPEN THIS DOOR

before you open the bids

You learn more about true meter costs when you open the meters for repairs than when you open the bids.

A water meter is a fine instrument, and any fine instrument loses accuracy as it wears. Because of this fact, written between the line of any water meter price are two items of cost you can't read for many years.

First, as a meter loses accuracy, it gives away revenue. Before its first overhaul it may give away twice as much money as it "seems" to save in its low-bid original price.

Secondly, to keep the meter accurate you may have higher repair costs over the years . . . or premature scrap-and-repair programs. Good meters often vary widely in this respect.

Water is your city's most vital service. You entrust it to the accuracy of your meters. Before you buy, walk into your meter shop. Talk to the men whose efforts guard your water supply. Ask which meter gives highest sustained revenue . . . with lowest repair and depreciation costs.

We sincerely believe the answer will be "Trident."

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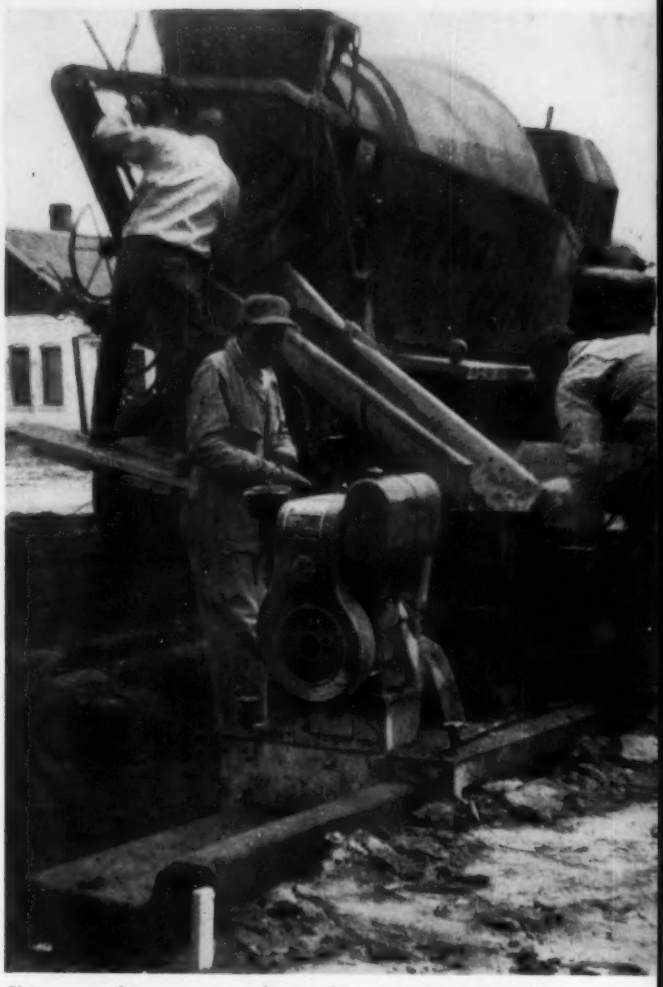
200

Workmen lay the angle iron rails to grade ahead of the curb and gutter machine.

Cost Sharing, Cost Saving Street Pavement

By GLYNN MILLS
City Manager
Alamosa, Colo.

ALAMOSA'S cost-sharing street construction program benefits the individual property owner and the city at large. Our 1958 program covered the paving of 16 blocks, and we plan to pave some 34 blocks in the same manner this year. The property owner benefits by a reasonable assessment—$3.40 per front foot for his half of a 52-foot-wide street, including paving, curb and gutter, the necessary drainage facilities, storm sewer connections, manholes, catch basins, and incidental costs of interest, legal fees,



Using a no-slump concrete, this machine extrudes curb and gutter without the need for additional hand labor.

The curb machine was also used to lay the radius. Open space was left for installation of a catch basin.

Workmen space the bags of cement so that they will provide a 6-percent cement content to the base.

Connecting the spray bar on the mixer to a nearby fire hydrant eliminated the need of a water wagon or tank truck.

fiscal agent, clerical work, etc. The city at large benefits as more and more streets are paved, thereby reducing the maintenance of graveled streets.

Two major factors shaped our decision to use soil-cement base paving rather than some other kind. The first factor was the high cost of gravel or crushed rock aggregate in this area. Such material does not exist here—and to get it requires high trucking costs. Secondly, the character of our soil permits the use of only 6% cement to make an ideal base. Portland Cement Association personnel made rather extensive tests on our soils to determine the optimum cement content for a really adequate base.

We economized right at the start by using a Smith-Field automatic curb and gutter machine owned by the city. This machine runs on a track consisting of nothing more than angle iron set to grade. No forms are required and the result is a great saving in the final cost of the curb and gutter.

The unit uses a concrete mix of zero slump which after being extruded requires no forming or finishing. However, we do apply a curing compound to assure a good cure in the concrete. The cost per lineal foot of the 2-foot-wide curb and gutter placed in the 1958 project came to $1.08, including all labor, materials, excavating, engineering, and backfilling. City street-department crews did all the work except the mixing and delivery of concrete. This was done by a contractor at a cost of 39 cents per lineal foot of curb and gutter in place.

Five-Inch Base

We bought the cement in bags rather than bulk because the city does not possess bulk handling facilities. Street department personnel spotted the bags to give the correct proportion of cement, cut them open, spread the cement and burned the bags. Final spreading was accomplished by means of a 6- by 8-foot section of chain link fence dragged behind our Willys Jeep. Two or three passes of this drag distributes the cement very evenly on the base. Next a Seaman Pulvi-

Here the mixer and blade apply the 1-inch bituminous cap. This is covered with a seal coat plus sand or gravel for a wearing surface.

Mixer blended the cement with the base soil by making a dry pass, working the soil to a depth of 5 inches. During subsequent passes water was added by attaching a fire hose from a fire hydrant to a spray bar on the Pulvi-Mixer.

After sufficient water was added the base was shaped with a blade and repeatedly rolled and shaped until 90 to 95% of the optimum compaction (obtained by the Proctor test) was achieved. For compaction we used a Bros pneumatic roller towed by the Jeep.

After final rolling and while the base was still damp we applied 0.25 gallons per square yard of MC-3 asphalt to the surface. This serves a double purpose. First, it holds the moisture in the base mixture and thus promotes even and slow curing and, second, the asphalt provides a means of binding the bituminous surface course material later applied to the base.

Surfaced and Sealed

To make the 1-inch asphalt wearing surface we placed the aggregate on the base, added about 13.5 gallons per ton of asphalt with our Rosco distributor and mixed it with the blades and the Pulvi-Mixer. When the mix was spread and rolled we applied a seal coat consisting of 0.25 of a gallon per square yard shot of asphalt covered with either sand or gravel. For this year's asphalt work we will use a Barber-Greene 25-40 hot-mix plant recently purchased from the State Highway Department.

City forces carried out the entire construction work, with the exception of mixing and delivering concrete, under the direct supervision of Street Superintendent Frank Espinosa.

To help finance the 1958 program, Alamosa issued a special improvement district $36,000 bond issue to pay for materials, interest, advertising and similar costs. City street-department tax funds covered the labor and construction costs.

The combined 1958-1959 programs will increase the amount of paved streets in Alamosa by about 50%.

Chicago's Parking Exhibit

THE City of Chicago is well under way in its vast parking program, largest in the world. Its soundness has been established and the rewards are substantial.

Some of Chicago's parking garages have won awards for their modern architecture. They were located to serve the businessmen, the merchants and the shoppers.

This story about parking is told graphically in a traveling exhibition which was first on display at City Hall and then at Northwestern University Engineering Institute. Next it was at the Merchandise Mart and then it moved to the Museum of Science and Industry. It presents large photographs of the garages, the different types of lots and how they are operated, where they are located, and what is yet to come. The three different types of parking meters are on display and can be operated by the viewers. Profit and loss statements show the citizens the financial stability of their program.

Notable is the fact that this is the first time a public relations program of this size has been organized by a Parking Bureau.

Each time the exhibit has been installed, Louis P. Farina, Superintendent of Parking, has lectured on the Bureau's program, illustrating his points with charts and pictures.

Louis P. Farina, Chicago's Superintendent of Parking, and Harry Rosenblum, designer of the parking exhibit, view the results of their work.

About midway between the island and Salem the two lines merge into a common header for metering and control.

Nature Provided Part of Our Water System...

. . . and delivers the product from source to customer

By JOHN L. GERIN
Manager
Water Department
Salem, Ore.

ONE might say that nature and man got together to develop Salem's water system. Nature supplied the river, an island with plenty of sand and gravel, and sufficient elevation to permit gravity flow. Man made a few changes to the island and added the pipelines. This system has worked so well over the past 22 years that last year it was merely enlarged to satisfy today's increased demand for water.

The original system, completed in 1937, consisted of an 18-mile, 36-inch diameter gravity line from an island in the North Santiam River, an infiltration system, and a 10-million-gallon terminal reservoir in the city. The line had a capacity of about 19 mgd under a head of 300 feet to the general level of the city.

As the water requirements of the city, by 1950, began to approach the capacity of the line, we constructed the 100-million-gallon Franzen Reservoir about 7 miles from town along the supply line to impound excess water during periods of low demand. By 1955 we realized that an additional supply was necessary and engaged Clark and Groff, consulting engineers of Salem, to make a study of the available sources. They recommended further development of the North Santiam source and the construction of a second transmission line.

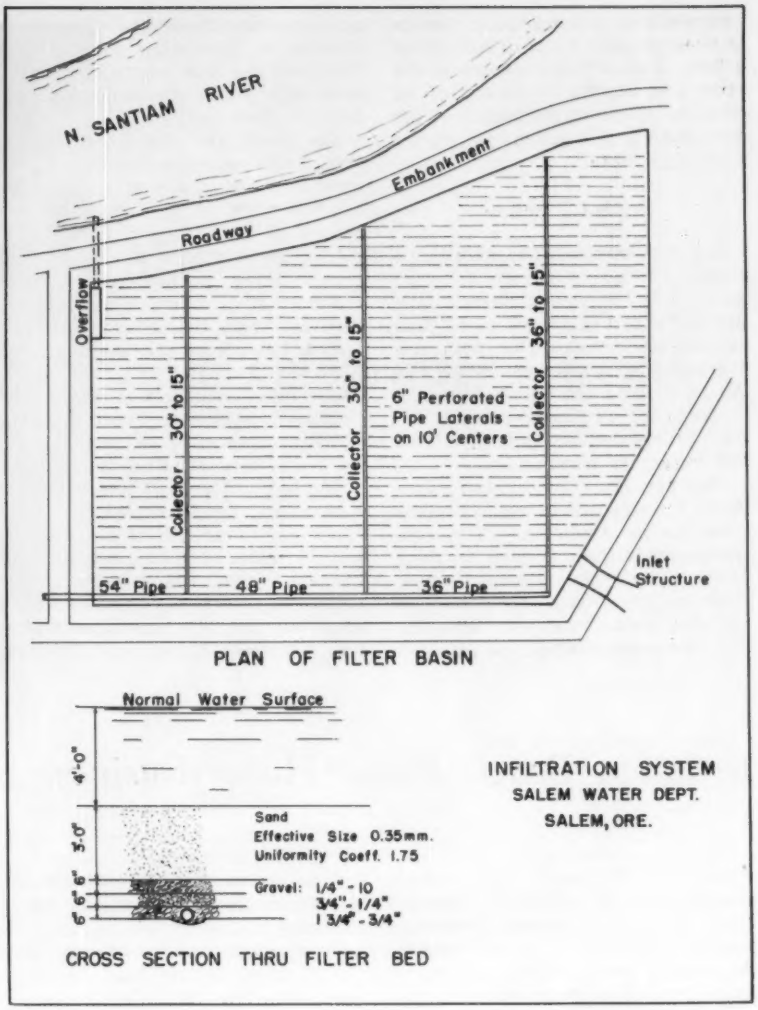
Infiltration System

About 24,200 feet of perforated pipe laid in the gravel of the island and covered with selected sand and gravel comprise the collection system. Construction of the new addition involved excavating an area of about 5 acres to approximately the level of low water in the river. The natural sand and gravel formed the floor of the basin. Workmen then extended the 54-inch supply line into and along one edge of the basin. Three headers extend at right angles to the supply line at 180-foot intervals across the basin. Finally, a series of 6-inch Armco perforated corrugated iron laterals extends at right angles to the headers. These cover the entire basin at 10-foot spacing.

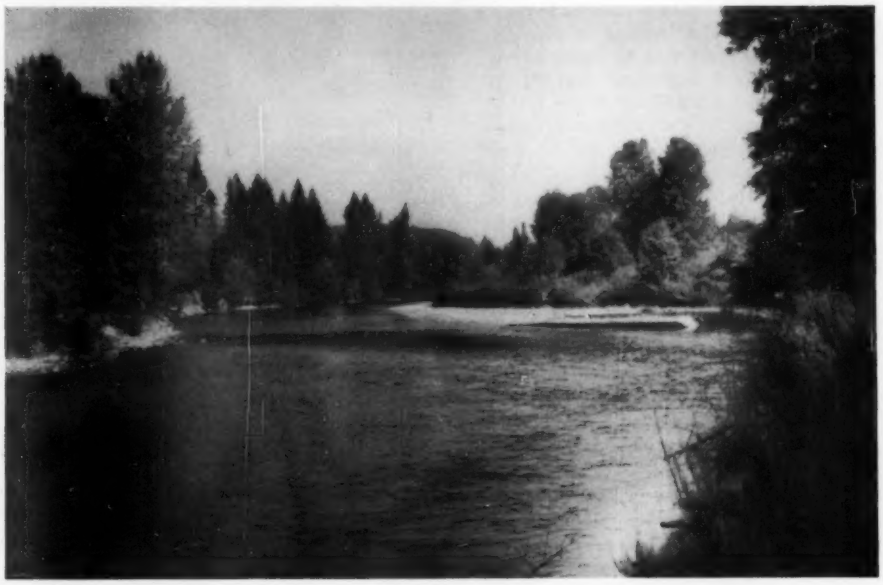
The perforated laterals are bedded in a 6-inch layer of 1¾- to ¾-inch gravel. Over this we placed 6 inches of ¾- to ¼-inch gravel; 6 inches of ¼-inch to #10 gravel; and 3 feet of sand having an effective size of 0.35 mm and a uniformity coefficient of 1.75.

Water flows from the river

Collector pipe and laterals were laid directly on the natural gravel of the island. Main line can be seen in the background.



Right:
Plan of new filter basin showing arrangement of perforated laterals, collectors and transmission main.



Water quality of the North Santiam River is excellent, both bacteriologically and chemically. Chlorination is the only treatment required.

through the original filter basins to flood the new basin to a depth of 4 feet. Excess water returns to the river downstream by means of an overflow. Rate of infiltration of the new basin is 0.13 gallons per square foot per minute.

Second Pipeline

Our new transmission main has a capacity of about 50 mgd. It consists of 50,800 feet of 54-inch pipe and 38,700 feet of 48-inch pipe. This is concrete cylinder pipe with pretensioned reinforcement made by American Pipe and Construction Co. of Portland. Design pressure is 100 psi. Trucks delivered the pipe from the factory to trench-side.

This new line runs through a generally flat area presenting no serious construction problems. The contractor made the one river crossing at the island by the open cut method, diverting the stream. The work also included 11 smaller stream crossings, two railroad crossings, and 33 road and highway crossings. Construction of the line began on May 28, 1957 and the last length was laid, with appropriate ceremonies, on October 23, 1958.

The project included the construction of two small structures. One, a new chlorinator station located at the lower end of the island and arranged so as to supply either the old or new supply line or both, houses three manually controlled Wallace & Tiernan chlorinators. Two are from the old station and one, a 400 pound per day unit, is new.

The other structure is a control building located near where the old and new lines cross at about their mid-point. Here the lines merge into a common header for metering and control, and are so valved that the upper and lower half of either line may be taken out of service for inspection or repair. A 30-inch S. Morgan Smith cone valve, located at this point but remotely controlled from the water department shops in Salem, regulates the flow to the city. Excess water flows to the Franzen Reservoir. Metering is done by a 48-inch Sparling Mainline meter.

Water for the Future

The Salem water system now serves a population of approximately 50,000 people. During the exceptionally dry summer of 1958 peak demand rose to 30 mgd. Fortunately the new filtration basin and upper portion of the supply line were ready for use. This helped us get through a situation which might otherwise have been critical.

We now have a total available capacity of about 75 mgd, a supply estimated to be adequate until our population reaches 150,000.

Contract price for the pipeline was $3,093,190 and for the filtration system $329,021. Another $29,750 went into the two small structures. We obtained the necessary funds through a $3,750,000 general obligation bond issue.

Redondo Beach Plans Habor-Business Renewal

PLANS for the multimillion dollar development of Redondo Beach, Calif. harbor and central business district prepared by Victor Gruen Associates, architectural and planning firm, have been accepted by the City Council.

The Council has authorized an election for a $9 million revenue bond issue to finance the harbor development. The balance of this $16 million project will be financed through surplus revenue derived from the harbor itself.

First Stage

First stage of the development includes berthing facilities for over 1,000 boats, together with parking accommodations. Provision will ultimately be made for 2,400 boats, 3,100 parking stalls and a 26-acre commercial development area.

Comprehensive Planning

The project includes comprehensive planning for all areas adjacent to the harbor as well as the central business district. Recommendations made by the Gruen firm included parking policy, improvements by private enterprise in keeping with the city policy and the revision of city ordinances to accommodate special uses.

Construction drawings are now being prepared and the city expects that the initial stage will be completed in approximately a year and a half.

Sketch of Redondo Beach's proposed harbor-business renewal project.

The automatic switchboard of the microwave system is inspected by Lt. J. T. Marshall, Communications Officer, and William Lee, Radio Engineer.

Microwave Radio and Teleprinter Circuit for Police

THE problem of communication is becoming increasingly important at all levels of government, city, state, and federal. Events in this field move fast. Only a year ago, for example, the Virginia State Police were depending entirely on conventional methods of communication, i.e., leased teleprinter circuits and two-way radio telephone. The leased circuits are often overloaded, because of heavy use by city and local police, FBI, and other state and federal agencies. Another drawback to the leased teleprinter system is that if one station is "talking" to another, the whole circuit is "busy" or shut out, just as in the case of the party-line telephone.

Although the Virginia State Police makes full use of conventional methods of police communications, the heart of its network now is a microwave radio and teleprinter circuit serving exclusively the most important eight stations in the state: Alexandria, Appomattox, Culpeper, Norfolk, Richmond, Salem, Wytheville, and the administrative headquarters on Route 60 just outside historic Richmond.

The "brains" of the system is housed in a small brick building under the 400-foot microwave radio tower at the Richmond headquarters. Especially designed and built by the Kleinschmidt Division of Smith-Corona Marchant, the compact switchboard automatically routes all calls to the proper destinations. It is virtually unattended except for brief periods of inspection.

Teleprinted messages are sent over the microwave system either manually (by typing on the Kleinschmidt teleprinter keyboard) or by tape transmission. The Kleinschmidt switchboard and teleprinter are activated by the same microwave radio impulses used to transmit verbal messages back and forth, and the "brains and guts" of the latter equipment, produced by RCA, is also housed under the Richmond headquarters radio tower. There are eight such towers spotted about the state near the participating stations.

Four Conversations at Once

Unlike the conventional leased circuits used by most city and state police organizations, a "conversation" between two stations on the microwave circuit does not shut out the others. In fact, it is possible for four two-way "conversations" to be going on at once on the eight stations circuit.

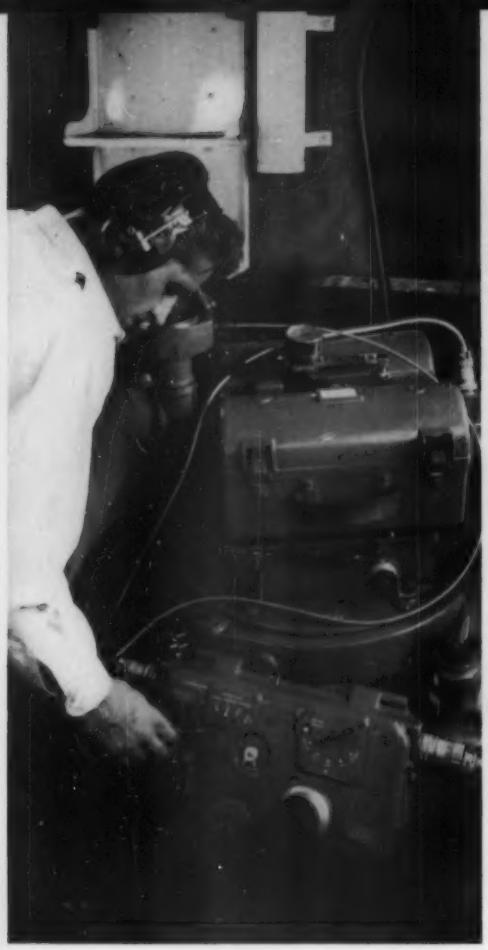
In the event of an emergency, the circuit is automatically cleared when the dispatcher types a special series of code letters. Then after the "general alarm" messages have been sent, the switchboard automatically resumes transmission on those messages which were interrupted.

Another advantage of the exclusive microwave radio and teleprinter system, which should be of interest to the government of any large city, is that it is not dependent on outside sources of power. If there should be a breakdown in telephone communications as a result of a strike, storm, or war, the conventional system would be out of business. The microwave radio and teleprinter circuits are equipped with their own power.

Since the installation of this equipment in 1957, city and police officials from all over the world have come to admire and learn. The U. S. State Department arranged for recent visits by officials from Middle Eastern countries, South America, and the Far East, including the Philippines and South Korea. In addition, city and state officials from most of the 48 states have come to study this unique communications system.

The microwave teleprinter and radio network, already expanded from six stations to eight, is capable of further expansion to 25 stations. The network with its unattended switching system is not only efficient but actually saves the taxpayers money by releasing personnel for other duties. The conventional leased circuits used by VSP require a crew of approximately fifty dispatchers.

It is this combination of rapid, accurate communications at less cost which intrigues the officials of large cities who have visited and studied the Virginia State Police operation.



On these once-peaceful farms . . .

◄ One of the several aerial cameras used by Lockwood, Kessler & Bartlett, Inc. for photogrammetric survey work is this Wild RC8 instrument.

Photogrammetry Keys Sewer Project

By WILLIAM F. COSULICH
Principal Sanitary Engineer
Lockwood, Kessler & Bartlett, Inc.
Syosset, Long Island, N. Y.

DEMANDS of phenomenal post-war residential and industrial growth have forced planning and mapping action to provide integrated sewerage for a great segment of Long Island, New York.

The 200-square-mile area of eastern Nassau County has, in 20 years, sprung from a sleepy land of potato farms, spacious estates and occasional small hamlets to a vibrant residential and industrial region of more than a half-million inhabitants.

Roosevelt Field, the country airport from which Lindbergh took off to conquer the Atlantic, is now occupied by a great shopping center, an industrial park and one of the world's most luxurious trotting raceways.

Despite this growth, 107 square miles of the central and south portions of Eastern Nassau County are without public sewerage. Some 70% of the land area has been developed and 140,000 homes are served by individual sub-surface sewage disposal systems. Levittown, the planned community of post-war fame, contains more than 17,000 single-family dwellings on plots averaging 6,000 square feet, all served by cesspools.

Individual systems have served fairly satisfactorily up to now, but municipal and county officials have for some time recognized that public sewerage cannot be put off.

The county obtains its water exclusively from ground water supplies. The only fresh water available for replenishing ground water storage is the annual 45 inches of precipitation that fall directly upon the island.

More than 620 public supply wells in some 50 supply systems owned and operated by villages, water districts and private companies, serve the county. In addition, there are about 580 industrial supply wells.

The region has this two-fold problem:

1) Protection of the ground water supply against pollution and

2) Adequate recharge by storm water run-off to assure a continued pure and adequate supply.

The collection system and the sewage purification project were designed to satisfy these critical water needs.

The great expanse of area ruled

. . . homes are the bumper crop.

For 140,000 Postwar Families

out use of costly, time consuming, conventional survey methods. Lockwood, Kessler & Bartlett decided instead to employ photogrammetric methods.

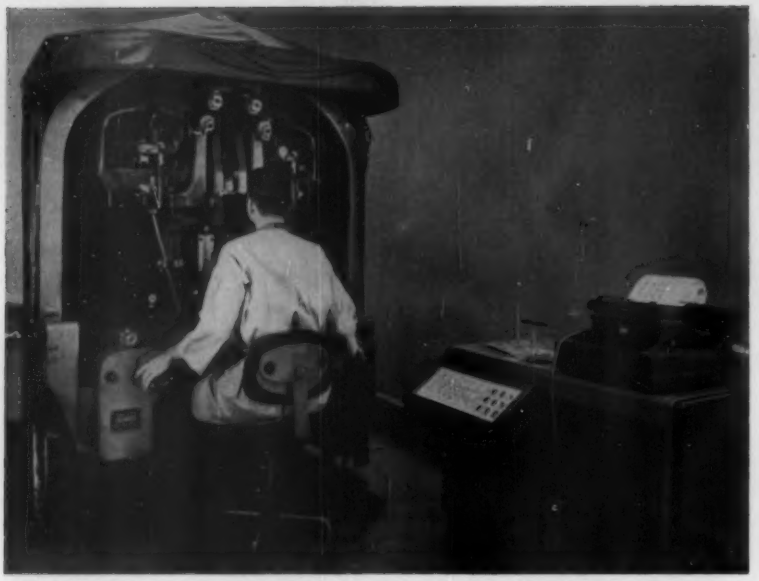
The work required merely two years, with field survey crews used only to establish necessary horizontal and vertical control. A total of 450 photographs were necessary for aerial triangulation and 1,925 photographs were used for stereoscopic compilation.

Aerial Photography

Aerial photographs for mapping were taken at an altitude of 2,500 feet and photography for aerial triangulation and photoplanimetric revision was done from a plane flown at 6,000 feet.

A Fairchild six-inch Cartographic precision mapping camera was used

Kelsh Plotter is put to overtime use transferring contours and other data.



Wild A-5 precise plotter, used for rigid control, is at left. On the right is a recently developed digital computer used with a Bendix G-15 electronic computer for handling earthwork computations.

exclusively for photography and a Wild A-5 first order stereo-plotter was used for extension of control. Kelsh plotters were used for compilation. These key instruments project 3-dimensional images from overlapping aerial photos to provide contours and other data traced in map making.

Mapping

Mapping was in conformance with standards set forth in the "American Society of Civil Engineers Manual of Engineering Practice; No. 11, Technical Procedure for City Surveys." At the county's request, original maps were drawn to a scale of 1 inch : 200 feet. They showed such pertinent information as the controlling elevations of existing drainage structures and grade-intersection elevations.

Spot Elevations

A density of spot elevations in critical topographic areas not fully defined by the basic 2-foot contour intervals also were incorporated into the maps. Finally, a series of check profiles were run to verify horizontal and vertical accuracy of each map.

For the trunk study, the photogrammetric maps were reduced to a scale of 1 inch : 1,000 feet, and the boards for convenient size. The entire area was placed on four basic 2-foot contour interval made possible a far more accurate study than is normally found in preliminary reports. The density of topographic detail was of particular value in the flat central plain and south shore areas. In the course of the project, 105 sheets of multipurpose topographic maps were turned over to the county.

The northern third of the county is characterized by low, rolling hills, but the central and southern portions are a gently sloping outwash plain with an average fall of only 20 feet per mile. The south shore consists of mainland salt marshes and an inland complex of bays, channels and marsh islands protected from the ocean by a sand barrier upon which the famous resort, Jones Beach, is located.

Estimates of future population to be served by the proposed system were made by the area-density method. Maximum sewage flow was determined on the basis of ranges from daily per-capita flows of 400 gallons in lateral sewers to 250 gallons in trunk lines.

Estimates of the quantity of wastes from industrial plants were made from a review of water records supplemented by plant surveys. Future wastes from presently unoccupied industrial sites acreage were figured at 10,000 gallons per acre per day.

The total average sewage flow for the year 2010, for a population of 885,000, was estimated to be 100 million gallons per day.

The recommended trunk sewers vary in size from 24-inch minimum diameter to 120 inches. Three pumping stations will be required. In general, trunk sewers follow natural valley lines, deviating here and there because of the presence of parkways, railroads and other structural barriers.

Purification

Purification of the sewage presents a major problem because effluent must be discharged into tidal waters of the south shore, one of the foremost bathing and recreational water areas in the world. Preservation of these waters is of paramount importance.

The recommendation, therefore, was for complete biological treatment by the activated sludge process, chlorination of effluent and disposal by dilution into one of the major boat channels of the bay waters.

Hydrographic observations were made at five channel sites, selected because their depth and width would provide maximum dilution and dispersion of the purified effluent. Observation methods included current velocity readings and the tracking of free floats.

Ultimate Sewage Flow

Based upon the estimated ultimate 100-mgd sewage flow, an oscillating water mass of 2,000,000 cubic feet was calculated to be desirable to disperse the effluent. Results of these tests indicated that any of the five channels could do the job effectively at the proposed level of purification.

Estimated Cost

At present prices, the estimated cost of the entire eastern Nassau sewerage system will be $227,000,000. A 1958 assessed valuation of the property in the area is $885,060,473. The ratio of project cost to assessed valuation of property is high, at present, but this ratio will decline, as the engineers' report to the county stated:

"Since there is substantial undeveloped acreage and anticipated population growth . . . the total assessed valuation can be expected to rise appreciably within the next few decades. The sewerage system need not be constructed all at once, but rather in stages, giving preference to areas most in need of sanitary sewers."

These three deaf mutes prove more efficient than those with normal hearing when at work in the IBM tabulating section.

"Handicapped" City Employees

Austin, Tex. wins national honor by employing physically handicapped—finds it a policy that pays in efficiency

By DICK DUNBAR, *Assistant Director of Personnel, Austin, Texas*

AUSTIN has the heartwarming distinction of being the first municipality in Texas to win two awards in one year for its enlightened policy of giving employment to the physically handicapped.

A Presidential citation for meritorious service for "leadership in hiring employees on the basis of ability to do the job" was presented to Mayor Tom Miller last September on behalf of the President's Committee on Employment of the Physically Handicapped. And more recently, an award from the veteran-sponsored Texas Committee for the Employment of the Physically Handicapped was conferred on City Manager W. T. Williams, Jr., with a special citation by Governor Price Daniel.

Austin now has 251 "handicapped" individuals on the city payroll out of a total work force of 2,800. These include 3 blind, 3 deaf, 25 who have lost parts of their extremities, and 36 with heart conditions.

In meetings of the local Committee on Employment of the Physically Handicapped, we found that a main objective was to attempt to break down the barrier against employment of handicapped persons simply because of their disabilities. We place a person on a job if any handicap he has will not:

1. Interfere with the efficiency of doing the job.
2. Cause hazardous conditions affecting people on related jobs.
3. Cause any undue physical strain or harm to the person with the handicap.

A one-armed man can deliver water and light bills. A blind person can "see" just as well in an X-ray darkroom as a person with no sight limitations. Deaf people thrive in the noisy atmosphere of a key-punch section; and paralysis resulting from polio does not restrict a young lady who does copy typing.

The program has proved profitable. Generally speaking, the handicapped take no more than average sick leave; they are dependable, are less prone to leave a job, and their accident records are commendable. We think that the handicapped employees are a good employment risk.

One reason for New York's Cleaner City Campaign success — carrying the word directly into residential neighborhoods and soliciting the help of those who live there.

New York City Is Cleaner

Four years of progress prove the value of a continuing clean-up program—surveys point up "sore" spots

By PAUL R. SCREVANE
Commissioner
Department of Sanitation
New York, N. Y.

MAYOR Robert F. Wagner, shortly after his election to office four years ago, asked that a Citizens' Committee be formed to do something about a problem plaguing New York all through its history—dirt and litter. Of course, various city departments have always worked hard to keep the city clean. But this was to be an all-out effort designed to sell the need for a clean city to all persons living or working within our town. Those of us who have been active in the continuing Clean City program believe that our efforts have been responsible for great improvement.

These improvements are real—not imaginary. They are borne out not only by the people connected with the work, but by comments of visitors from other cities in this country and many foreign lands.

When *This Week* Magazine featured New York's clean-up campaign as an example for the country to follow, dozens of inquiries came in from interested cities, one from far-off Tokyo, Japan.

All persons in the street cleaning field face the familiar difficulty of evaluating cleanliness in numerical terms. Some subjective evaluation is inevitable but that does not necessarily make the conclusions invalid.

Nature too, creates litter during certain seasons of the year.

Facts and Figures

Actual field surveys conducted both by the Department of Sanitation and the Citizens Committee to Keep New York City Clean, Inc., bear out our claim that New York is cleaner today than ever before.

During 1953 the Sanitation Department collected an average of 277 tons per month from litter baskets. Current litter-basket collections

A Sanitation Department clean-up crew and about 25 boys and girls transform this messy lot into a flower garden.

Converting trash dumps to flower gardens not only makes for a cleaner neighborhood but instills a sense of community pride and helps curb juvenile delinquency. Pennies and nickles contributed by local children paid for the flowers and shrubbery.

average 2,260 tons per month. In 1955, when our Clean City program began in earnest, the total number of summonses issued was 130,000; 106,203 were issued in 1956; 64,291 in 1957, and 79,558 in 1958. The decrease in the number of summonses has been due to an increase in compliance with the various sanitary regulations. The litter potential, that is, the resident and transient population, number of dogs, newspapers, cigarette packs, chewing gum wrappers, etc., has been fairly constant during the past decade.

The Citizens Committee made its third survey during the summer of 1958, covering 5,785 blocks. Similar surveys were made in the fall of 1955, covering 9,806 blocks, and in the summer of 1957, covering 4,371 blocks. Table I gives the city-wide average for sidewalk cleanliness.

Table I
Cleanliness of Sidewalks
(% Rating)

Condition	Year		
(Citywide average)	1955	1957	1958
Excellent	8.1	24.3	48.8
Good	47.9	44.7	35.7
Fair	31.2	26.4	9.1
Poor	10.2	3.6	4.5
Very Bad	2.6	1.0	1.9

Predominant types of litter consists of scrap paper, cigarette and candy wrappers, cigarette butts, dog nuisances, newspapers, junk or debris, paper containers, garbage, grime and peelings.

Regarding litter baskets, expressed as a percentage of adequacy, the surveys showed 47.4; 61.5; and 76.9 for 1955, 1957 and 1958, respectively. We now have about 25,000 baskets dotting our streets, including 3,400 new baskets which were added in 1958.

The condition of garbage and refuse containers also showed encouraging gains. Table II shows the survey results.

Table II
Conditions of Garbage and Refuse Containers
(% Condition Noted)

Condition	Year		
(Citywide average)	1955	1957	1958
Covered by lids	86.0	90.3	97.2
In good condition	83.3	85.8	94.1
Adequate in number	69.5	80.3	89.4
Refuse—securely packaged or tied	60.0	77.8	87.5

No single department, committee

Overflowing trash cans provide an abundant source of litter, especially on windy days. New York's publicity and education program brought about changes like this in many neighborhoods.

or group can do all the work—nor can a combination of these handle the total municipal clean-up job. A major part of the task still rests with the individual and in New York this means some 8,000,000 people. Educating such a large group represents a tremendous task and it is in this phase that the Citizens Committee performs invaluable service.

The broad educational program, through advertising, publicity, special events, schools, and volunteers, constitutes a tremendous supplementary effort to the physical force brought to bear on the litter problem by the Department's 10,000 men and by other operational units of the Mayor's Interdepartmental Committee for a Clean City. This unprecedented volume of sanitary education, plus daily operations, including enforcement, has made for outstanding progress in our clean-city endeavor.

In the field of advertising, New York media responded most generously. From October 1957 through September 1958 newspapers, TV, radio, outdoor, transportation and other advertising companies gave $1,116,590 worth of free space and time. This represents a record of $43 worth of space and time for every dollar spent. All media have contributed over $2,000,000 since the program began and for this coverage the Citizens Committee paid only out-of-pocket costs.

Young & Rubicam, Inc., the Committee's volunteer advertising agency since the beginning of the Clean City Program, produced the effective advertising and coordinated media.

Publicity also plays an important role. Special events and facilities included clean-up campaigns, talking litter baskets, slogans, large posters and group activities involving young and old. The Committee works closely with schools and the Sanitary Education unit of the Department of Sanitation to enlist the interest and participation of children in helping to solve the litter problem.

Special facilities include public ash trays and probably the world's first canine comfort station. The latter, although viewed by many as impractical, served its purpose by drawing attention to the difficult sanitation problem caused by the city's 272,000 licensed dogs.

Transforming vacant lots from trash dumps to vegetable and flower gardens is another important innovation that is growing. Last year the city had nine such gardens and more are planned for 1959. Once the lot has been cleaned up, children take over most of the work.

No program of such vast proportions can succeed unless it can recruit helpful people to carry the battle into their own communities. Block captains carry on door-to-door campaigns to enlist aid of neighbors to help keep the block clean. Volunteers and committee members sponsor and participate in area clean-up projects, and business associations help by distributing special merchants' cards to their members.

Finally, there is the need for enforcement. Where education and friendly persuasion fails, teeth must be put into the Sanitary Code, and the "boom" must be lowered. The Police Department joined with the Sanitation Department in issuing summonses to "litterbugs," who persisted in committing violations. City magistrates cooperated by levying fines on violators.

And last but not least, there is the Citizens Committee, made up of several hundred men and women truly interested in making New York a cleaner city; the numerous financial contributors, persons and firms sharing this interest; and the many advertising contributors willing to carry the message to our people. Each of them plays a vital role in our continuous effort to keep New York clean.

But the job is not complete. Our progress places the job remaining to be done in better focus. Now that many borderline areas show great improvement, the dirty areas stand out—well defined, isolated, and relatively few in number. They are the challenge for the future.

New York has made much progress in cleaning heavy litter off the sidewalks and streets. But the light litter—bits and pieces of paper, gum and candy wrappers, empty cigarette packages, cigarette butts and paper containers, though found in less quantity—is still the problem. This problem can be solved only by a continuous and thorough educational program.

How to Get Municipal Park Sites

A brief review of methods that have worked in cities across the nation

By DON R. PRESTON
Manhattan, Kan.
Landscape Architect

Care should be taken not to accept all land donations from a developer.

BEFORE discussing various methods of acquiring park land it is essential that the value of parks be emphasized.

Parks add a touch of beauty to a city and this in turn results in increased civic pride. Open green spaces add a coolness which is both actual and psychological. Both recreation areas, which encourage physical exercise and team cooperation, and esthetically pleasing parks, which stimulate the mind and relax tensions, promote the general health of the citizens of the community. They aid in producing solid, intelligent citizens by providing an area where younger generations can develop their physical and mental powers. Well planned areas reduce street accidents by removing games from the city streets. They can aid in attracting large companies to a city. One reason that communities are sometimes rejected by large firms is they lack adequate recreational facilities. Parks reduce the feeling of crowding, create a setting for buildings and increase property values.

Most towns and cities today have trouble acquiring sufficient park land to keep pace with new developments. In many instances the communities have failed to support a budget for acquiring property.

Direct Purchase . . .

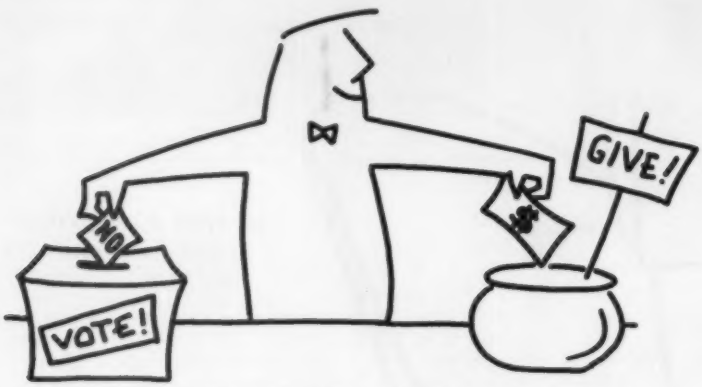
The direct purchase of undeveloped land by a city at the time of need and according to a carefully worked out plan is undoubtedly the best means of acquiring new park sites. Unfortunately it is a rare occasion that a growing community has, either through private donations (Example: ***St. Joseph, Mo.***) or through property tax levies ***(Davenport, Iowa)***, enough money to enlarge its park facilities to fulfill the increasing needs of its expanding population.

. . . or Bonds

The most common means of acquiring money is to issue bonds ***(Midland, Texas[1])***. To increase the acceptance of park bonds the location of the proposed park site should be designated. If it is not, voters may feel that there has been insufficient planning and that the city is being somewhat vague as to the specific use of their money. Often the city has decided where it intends to purchase but does not wish to let the specific location be known for fear the price of the proposed site would suddenly skyrocket. If options on several sites are taken this skyrocketing can be avoided or if the price does become exorbitant the power of eminent domain can be used. The city should try to anticipate how much money the taxpayers will approve. Two hundred thousand dollars may be what is actually needed but ninety-five thousand would be much better than nothing. If it is possible the park bond issue should occur at an election where it is not competing with other bonds and should not be combined with another bond issue such as a park-cemetery bond. It is necessary to acquaint the public with the need for parks by newspaper articles, talks to civic organizations, pamphlets and any other feasible means.

If the bond issue fails, it provides

an excellent opportunity to work for private donations. Even though the bond issue has failed, the citizens have been aroused to the need for additional park space ***(Manhattan, Kan.)***. People who voted for the rejected bonds often will make contributions and strangely enough people who voted against the bonds will often want to donate. In some instances a citizen will donate $100 whereas if the bond issue had passed his taxes would have been raised only $10. Perhaps this is because he prefers to say "I donated $100 toward this park" rather than "they raised our property taxes to finance this thing."



"I'll donate $100 for this park but I won't pay taxes to get it."

School-Park Sites

The joint acquisition of elementary school-park sites in cooperation with the Board of Education sometimes works exceptionally well ***(Glencoe, Ill.[2])***. By using resources from both a park fund and a school fund a larger site can be purchased than if each agency buys independently. It can eliminate the duplication of structures such as restrooms. With the school maintaining the building and the park authority maintaining the grounds there is no duplication of maintenance crews or equipment.

An area on the school-park grounds developed for the use of adults and older adults would draw many of the students' parents and other citizens to the grounds, thus bringing the parents in closer association with their children's school. For adults who have no children in school a direct benefit from their property taxes, which they could easily see and enjoy, would be provided. Also land values generally decrease immediately adjacent to school grounds whereas they increase adjacent to parks. It has been found that land values fluctuate very little when the school-park system is used.

Tax-Distressed Estates

Robert Moses points out that large land areas such as private estates, golf courses, and fish and gun clubs are particularly susceptible to mounting tax problems that occur when rapid suburban development surrounds them.[3] Usually the owners are forced by tax considerations to give into the demands for land by the subdivider.

If it is legally possible, offer the owner 10 to 20 years of land tax exemption if at the end of this period he will donate the land for a park which he could name (***Long Island***, New York area). Twenty years seems a long period of time; however, it must be remembered that these privately maintained areas are valuable to the city as open green spaces and private recreational areas. If such a plan is impossible or if the owner would rather sell to a developer, the area may be zoned so that when it is sold approximately 10% of the land would have to be used for parks and recreation.

Benefit Method

Another way of acquiring land is to use the benefit assessment method. By this plan the entire city does not have to pay for a neighborhood park; only the neighborhood which benefits from the new park is assessed ***(Pittsburgh, Kans.)***.

Many times a city can use flood lands or other unusable areas for park sites. Sometimes it may be possible to use water department land or other governmental lands for additional park facilities.

Occasionally it is essential that a park be located in an area in which private homes or other buildings already exist. If the owners will not sell or will only sell at exorbitant prices the power of eminent domain may be used to acquire the land.

The Urban Renewal section of the Federal Housing Act of 1954 provides federal financial aids to encourage communities to improve their local living conditions. By use of this plan capital from the federal government, private enterprise and municipal resources are combined. In blighted areas the use of urban renewal is possibly the best means for acquiring park sites.

Subdivider Donations

A popular method in states which have the necessary legal statutes is to require a subdivider to donate a percentage of his land to the city park system. This percentage usually constitutes from 5% to 10% of the total area. It has the advantage of acquiring land at the time of need at no cost to the city. Also the presence of a park enhances the sales qualities of the plat. The objectionable features of requiring or accepting land donations from plat-

Private estates such as fish and gun clubs, are susceptible to tax problems.

ters is that the city has limited choice of location and it would acquire numerous, small, unusable areas which would require city maintenance.

Care should be taken not to accept all land donations from a developer. An occasional developer, although not required by city ordinances to donate land, will make gifts of his own accord. The free park lands that he gives to the city may often be small irregularly shaped plots which are not suitable for building or for parks. Since he could not use or sell the land he wants to remove it from the tax rolls and to be able to advertise that his subdivision contains several city parks.

Parks add a touch of beauty to a city and this in turn results in increased civic pride.

To overcome these disadvantages some cities have a section in their subdivision ordinance which gives the city, not the subdivider, the choice of park location within the subdivision; or if no suitable location is found the developer must pay to the city in cash an amount equal to the percentage value of the land ***(Colorado Springs, Colo.).*** With this money a park of the proper size can be located in the section of the city where it is most needed.

A variation of this idea is used by another city ***(Oceanside, Calif.).*** Here the ordinance requires the subdivider to provide either an acceptable site for recreational purposes or pay $25 per lot to the city. This money is deposited in a fund which is later used to purchase and develop park sites.

These methods can result in unfairness to some subdividers. Assume that two platters paid cash to the city. The city then acquires a park site adjacent to one plat but some distance from the other. As a result of the new park the sales qualities of one plat increases while the other receives no benefit.

Even though this system has disadvantages it has proven to be a workable method, especially in larger communities with strong administrations. In smaller towns everybody knows the developer and doesn't want to see anyone take anything from one of their friends. In such a case the developer can often be convinced that he will be doing himself a favor by donating park land to the community. It not only makes him a recognized philanthropist but it increases the sales values of his land ***(Union City, Tenn.).***

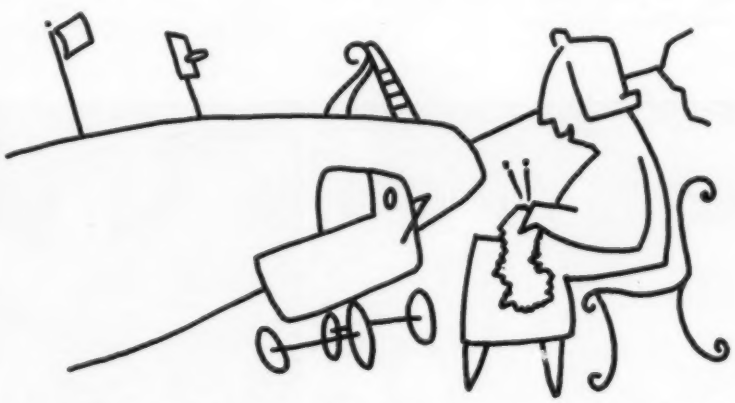
Fee System

A method used in another city is to collect a predetermined fee at the time the developer desires to have city water and streets placed in his subdivision ***(Hayward, Calif.[4]).*** This fee is figured on a stipulated amount per acre of land annexed to the city and is used exclusively for park acquisition and development. One of the disadvantages of this method or of any method which involves the collection of money instead of raw land from the builder or developer is that the actual park land is usually acquired after the platting or actual building has commenced. This naturally adds to the cost of the land.

The advantages of a master park plan which locates future parks in potential subdivision areas are: it acquires land at the time of need sometimes without cost to the city; plans well into the future; places parks of the proper size at logical locations; and benefits the developer by increasing the sales qualities of his subdivision ***(Springfield, Mo.).*** The major disadvantage of this method is that developers can surround the area planned for a park. They cannot be forced to include the proposed park area in their plat. Even though the developers may circumvent the area it still remains as an open space which the city may purchase at raw land value at some future date.

One city feels that new park needs are being created both by outward expansion and by the building of houses on heretofore vacant lots within the city. This interior building reduces the open spaces and increases the population density. They therefore feel that a fee of approximately $35 per dwelling unit should be charged at the time of issuance of the building permit ***(Lawrence, Kans.).*** They also believe that the predetermined fee would be easier to collect than would a fee which is based on a percentage of land value. The latter involves evaluation of the land, possible court actions and other administrative difficulties.

These suggested methods are all feasible and are presently working in numerous towns and cities. Because of the inherent differences of communities no one solution can be called the best method; however, one of them may prove to be a workable method for your community.



A park area on school grounds will bring parents into closer touch with their children's school.

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[2] Robert E. Everly, "The Planning and Uses of Municipal Park and Playground areas," THE AMERICAN CITY, April 1949, pp. 98-100.

[3] "Robert Moses Suggests New Park Acquisition Techniques," THE AMERICAN CITY, February 1957, p. 37.

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Left:
A dozer levels and compacts the material as fast as it is brought to the dump site. Note cleanliness of operation.

Right:
With the city alone doing the job, some four to five years will be needed to complete the project.

Drained Canal

Proposed use of reclaimed land to change the face of midtown Niagara Falls

By EDWARD H. POTTHOFF, JR.
City Manager, Niagara Falls, N. Y.

Ashes from the city incinerator and non-combustible refuse collected from local residences add to the thousands of yards of material needed to fill the old canal.

WE HAVE found that most disasters have their bright side. When the famous Schoellkopf disaster occurred, the generating plant collapsed into the Niagara River gorge, cutting off the supply of 25-cycle power from the many Niagara Falls industries. The hydraulic canal that served this station had long been an obstacle to the city's future plans. It is approximately 100 feet wide at the top, 85 feet wide at the bottom and approximately 40 feet deep. Its length is 4,400 feet and runs largely through the main business district of the city.

No one ever questioned the economic importance of the canal to the city for the availability of cheap power in the Niagara Frontier has been the backbone of its industrial greatness. Now, the canal no longer serves any purpose and we are taking steps to eliminate it. We are converting it into a sanitary landfill site for noncombustible materials.

On June 7, 1956, as a result of the Schoellkopf disaster, the canal was emptied of water. Intake cofferdams were built immediately to stop the flow of water through the canal. Except for minor dumping by contractors under the general control of

Serves as Sanitary Landfill Site

the Niagara Mohawk Power Corporation, the canal lay empty until June 1958 when the city assumed control and responsibility for filling the canal and requested that Niagara Mohawk transfer title to the property to the city. To date, there has been no transfer.

The depth of the canal, its location, and the proposed use of the reclaimed land dictated a carefully controlled operation. We started to fill at the north end and are progressing in a southerly direction. As of December 1, 1958, approximately 1,450 feet of the canal was about ⅔ filled.

We deposited a first layer of approximately 6 feet of heavy broken concrete and other materials which will allow natural ground water to flow to the drain. Then we followed with alternate 4-foot layers of compacted random fill and 1-foot layers of compacted earth. The top 6 feet will consist of heavy rock and quality fill.

Approximately 500,000 cubic yards of material will be needed to completely fill the canal, and we estimate that the city, without outside help, can and will fill it within four to five years.

An ambitious arterial street program plus our paving work provides large quantities of fill and cover material. The City of Niagara Falls collects combustible and noncombustible refuse separately. Therefore, the random fill includes ashes from the city incinerator and noncombustible refuse collected from Niagara Falls residences. Selected debris from demolished buildings also has served as excellent fill material.

City Public Works crews police and supervise the fill operation. We started out by using a tractor equipped with a regular dozer blade. This method works fine if the material can be placed as it is brought to the site. However, to continue the operation throughout the winter season meant that large quantities of cover material had to be stored at the site. This required some type of bucket. Since we have to continue some form of landfill operation

Niagara Falls' ambitious arterial street program and paving program provides large quantities of excellent fill.

even after the canal is filled, we decided to purchase the proper type of equipment for the job at this time. Late in 1958 we received delivery of an International TD-14 with a Drott Skid Shovel.

The Power Authority of the State of New York may help fill the canal with waste material from a local power project. However, a condition for such help is the transfer of canal property to the city. Also about 1½ miles of special roads along the rivershore from the intake site must be constructed since the extremely large equipment used at the construction site cannot drive on public thoroughfares. Such help, if forthcoming, is still about one year off. All filling is now being done under an agreement between the City and Niagara Mohawk. The latter has indicated that those sections of the canal necessary to complete the street pattern and an area for public use such as off-street parking will be deeded to the city.

Numerous Land Uses

The city is extremely interested in the final disposition of the canal land for we are also in the process of preparing a redevelopment program that requires use of major parts of the reclaimed canal property. Other portions are needed for arterial roads and as a part of the Niagara Falls Parks Development. Filling the canal will also permit the retirement of six bridges now crossing the canal as well as the completion of a street pattern which will involve five streets.

Using the canal for a sanitary landfill operation also results in a substantial saving to the taxpayers. On July 1, 1958, the State Power Authority took over the city's existing disposal area. Hauling the noncombustible wastes to the centrally located canal instead of to a distant point outside the city eliminates many miles of costly trucking.

The Schoellkopf disaster was indeed an immeasurable loss to the community, but we are doing our best to look for and to take advantage of all the opportunities that seem to accompany disaster.

Library Stresses Baltimore Progress

A VISITOR in Baltimore, Md., might easily conclude that the city Public Relations Department is located in the Enoch Pratt Free Library. The library has 12 display windows, and almost always at least one of these windows stresses Baltimore itself or its civic life.

When the librarian decided to bring the library into close touch with the main currents of the city's economic and cultural life, he chose Miss Kate Coplan to plan and prepare the displays. She has been in charge of the work since 1927 and her work has made the library a vital, indispensable part of Baltimore life.

Local people claim that whatever of importance is happening in Baltimore is reflected in the library display windows. Many make a practice of looking closely at one window every day in order to study all of them during the three weeks when they are maintained.

The library displays were first placed in the windows of vacant stores and it was not unusual to see Miss Coplan laden with equipment accompanied by the janitor carrying a bucket and scrubbing equipment. Invariably they had to clean the window before a display could be installed. It wasn't easy at first to persuade landlords to donate display space but before long the owners learned that attractive displays helped rent their buildings. The materials used in displays have been begged, borrowed, reproduced from smaller drawings, or made by local art classes.

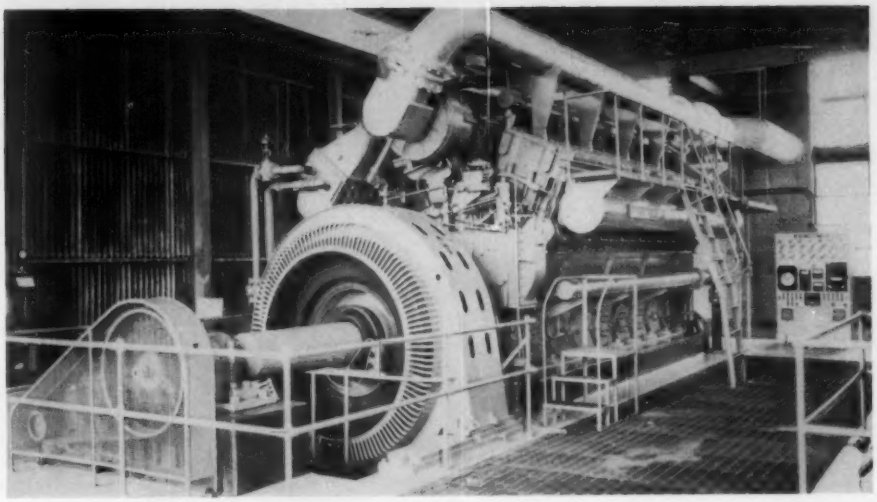
1797 - Baltimore's 160th Birthday - 1957
To Commemorate This City's Incorporation, February 1797
One Of The Major Municipal Activities Is Here Presented
City of Baltimore
1707

Pictures of Baltimore's mayor and executive officers were featured in this "Know Your Government" window.

Some of the civic displays which have appeared in the Enoch Pratt Library windows have been based on elections, civic improvement, anniversaries, and clean-up projects. Baltimore authors are frequently featured, and an entire window was devoted to a picture of the professional football team, the Colts, and the book written about them.

The library displays are always tied in with available books, but the themes are those which any city department could effectively use. Even a display of book jackets bearing Christmas trees gave preference to Baltimore-centered publications such as a book about Johns Hopkins, "The Amiable Baltimoreans," and books dealing with Maryland.

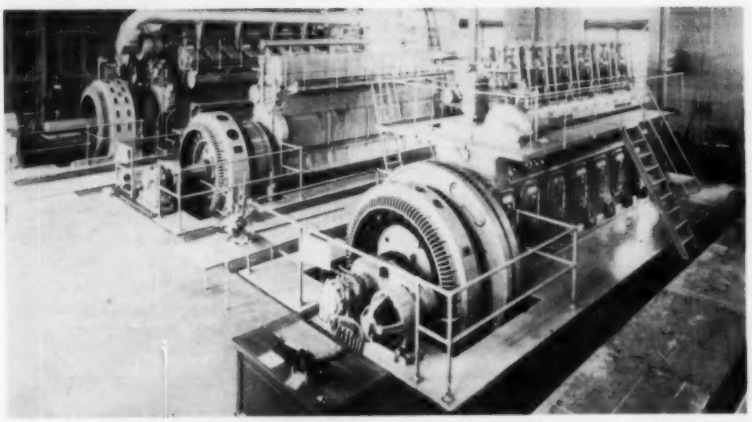
Miss Coplan's effective displays have attracted such wide praise that she prepared a book based on her experience. "Effective Library Exhibits—How to Prepare and Promote Good Displays" was published last year by Oceana Publications of New York. It is filled with helpful ideas which can be adapted to publicize the accomplishments of city departments and of persons and civic groups in the city.



Big V loafs quietly at 49% capacity factor. Note the special gauge panel (right background) for complete operational characteristics, and metal curtain wall (left) which provides for expansion.

V-Block Power Unit Pays Off

First-year records show 56% lower fuel cost at 49% load with the new 16-cylinder diesel



V-16 takes up little more area than older in-line engines. The 14-inch bore by 18-inch stroke unit is a 450-rpm, 4-cycle high-output performer.

SAVINGS of $48,760 in the first 12 months of operation tell only a part of the story of a new V-16, 450-rpm, 3,000-hp-rated dual-fuel engine in Independence, Iowa. Cool, quiet operation and compact area requirements help to fill in the balance.

The Independence installation has special significance because:

1) Iowa ranks tops in diesel and dual-fuel engine installations with more than 400 power units operated by public and private utilities.

2) The SWGO 14-inch-bore engine is the first V-block generating plant in the state.

3) Worthington furnished a special gauge panel designed to provide complete data on all engine operational characteristics.

4) The greater efficiency and lower cooling requirements of the SWGO-14 allowed engineering and design of an improved over-all plant cooling system under the same contract with installation of the engine.

The first diesel engine purchased by the Independence Light and Water Department was a Worthington five-cylinder, 350-kw air-injection unit. At that time, the original cooling system, an open spray pool, was put into service and a steam-engine-powered generating plant was put on stand-by service.

Except during war years, yearly growth in output has increased 9% to 12%, and the department now has five engines, including the SWGO-14, which is pushing a 2,500-kw Electric Machinery Company generator.

In 1948, there was a 42-hour blackout when the placid Wapsipinican River reached a crest just over the tops of the four generator shafts, and in 1949 a new powerhouse was built upon on a hill, complete with a three-cell forced-draft spray tower. Raw water was fed from the tower to water jackets and the Sims lube oil heat exchangers.

As demand rose, and firm capacities of the plant were approached, the tower cooling system was crowd-

ing the limit of its ability to serve the four engines, so specifications for the new engine were written with special emphasis on low temperature operation.

High heat rejection associated with older types of engine usually accompanied high cooling-system cost. The new dual-fuel engine gives up only 960 btu/bhp-hr to the jacket water and 265 to the lubricating oil, with an addition of about 280 btu/bhp-hr taken from the air intake after-cooler during warm weather months. Both lube oil and jacket water leave the engine at 160 degrees.

Specifications called for radiators to work in series with proposed heat exchanger coils in the existing cooling tower. They allowed alternate systems to permit use of more modern engines, and it was found practical to run all five engine jackets at 160 degrees, since all were four-cycle engines.

With the new installation the total jacket water heat load from all five engines is efficiently dissipated by a horizontal, finned 5/8-inch-tubed, two section Arrow radiator. All engines are connected through a common header system, with jacket water from the engines reaching the radiator header at 169° and returned to the inlet manifolds at 150°. The resulting decrease in the load on the water tower design cooling capacity was 73%. To the remaining 27% of design cooling capacity was added the air intake after-cooler heat load from three of the engines, bringing the cooling tower loading back up to only 46% of capacity, leaving plenty of room for load growth.

When the existing plant building was built in 1949, three of its walls were designed as permanent masonry with brick facing. The fourth wall was a steel-frame curtain wall of corrugated steel, allowing for the expansion of the building area.

It was not necessary to extend the building for the new engine, because despite a significant increase in power output, the SWGO-14 required little more additional area.

The first flow of natural gas into the city plant was timed to coincide with the startup of the new engine. The first full month of full gas operation saw a 52% reduction in fuel cost (subsequent break-in and final tuning increased savings to 56%). The new engine was operating at 49% load factor, compared with 71% for the older engines. The saving more than doubles the net earnings of the utility, and Independence Light and Water expects to pay for the new unit out of its own earnings within ten years.

Firemen License Bicycles For Burbank Youngsters

FIREMEN in Burbank, Calif. are saving bicycle owners both money and inconvenience this year and, at the same time, accomplishing a more thorough job of licensing all bicycles.

Burbank's "bike" licensing program, like those of many cities, is aimed at discouraging theft and expediting recovery in case a bicycle is lost or stolen. The fee is only 50 cents for a three-year period and thus is not a revenue producer.

In the past, licenses have been issued by bicycle sales and repair shops which have ordinarily added a 50-cent service charge to the regular license fee. There were many complaints against the service charge as "unfair," especially from the parents of this community's thousands of bike-riding youngsters. And the unfortunate result was that a substantial percentage of the bicycles remained unregistered.

Licensing at Schools Tried

During the three fiscal years beginning in 1953 and ending in 1956 the bulk of the licenses were issued in cooperation with the city schools. At certain hours during the day, classes would be released to obtain licenses from License Department personnel on the school premises. Licenses were also issued by bicycle shops and at City Hall.

In 1956, however, the school authorities found it necessary to discontinue the practice of releasing classes for this purpose. Instead attempts were made to handle licensing on school grounds immediately after school hours.

The city concluded that the weakness in the plan of licensing at schools lies in the fact that it can be done only periodically at each school. To do it more frequently would require an impractically expensive addition of personnel.

In the fall of 1958, however, the City License Department and the Fire Department worked out a cooperative arrangement under which licenses could be obtained at any of the six fire stations scattered over the city. There was no service charge, of course, but the hours of application were restricted to 3-5 p.m. each Saturday.

A young Burbank citizen gets a taste of municipal service at the local fire station.

The response has been highly gratifying. On the first Saturday during the two-hour period firemen licensed more bicycles than in any single month under the old plan!

The explanation, as gleaned from interviews with some of the hundreds of youngsters who showed up with their bicycles, was simple and understandable.

Boys and girls like the idea of going to the fire station "on business" and they also like the idea of having their bicycles licensed.

Parents appreciated saving the 50-cent charge and realized the license would be a loss or theft preventive. There was also the factor of convenience due to the nearby location of branch fire stations.

The Burbank plan, like those of many cities, is to stamp the bicycle frame with a code identification of the city, affix a decal to the frame, and record the frame number for permanent reference. In cooperation with other Southern California cities, the plan has resulted in recoveries of thousands of stolen or lost bicycles.

Licenses are normally sold for a three-year period.

Though the use of firemen to serve as license deputies was at first an experiment, it has proved so beneficial that it is being adopted permanently.

A municipal employee takes down citizen's request on the service request form.

Some Tips on Small City Administration

By WILLIAM A. SOMMERS
Township Manager
Bensalem Township, Pa.

THE "agonizing" change from a rural community to an aggressive and growing urban area is beset with many large and difficult problems. Indeed, rural areas have more than their share of problems and generally don't have the resources to cope with them, particularly when the area is part of a rapidly growing urban complex. The older residents remember with nostalgia the rural and quiet features of the land while the newcomers seek the higher level of service they knew in the city. The changes that inevitably come put a tremendous pressure on the existing governmental pattern and usually start a search for new approaches to problems and new methods of doing things.

Bensalem Township, part of the metropolitan Philadelphia complex, has made such a change within the past eight years. Its present population of 22,000 represents a 100% increase and we have every reason to expect the population to keep on rising. To overcome the complications associated with growth under static rural government, the Board of Supervisors inaugurated a township manager form after the usual amount of debate. I have the privilege of serving as the township's first manager.

Before the basic problems can be tackled governmental housekeeping must be set in order. While the resulting administrative changes here have not been broad and overpowering, they have enabled this growing area to serve its people quickly and efficiently.

Purchasing Rules

First, we set up a simple, clear arrangement on purchases. We established a set of rules providing that:

- every purchase must be supported by a requisition made by the department head.
- all purchases except those of emergency nature or those made under formal contract, must be accompanied by a purchase order made out to the vendor with a copy kept in the township office.

Next, we established a clear method of financial reporting. We revised our monthly forms to include a rudimentary variation of "encumbrance accounting." In essence, this means that when the bookkeeper tallies the month's expenditures, she includes a separate column giving the total purchase orders outstanding where the material has not yet been received.

Third, we turned our attention to the budget, preparing it with realistic details and programs so that the Board, as well as the public, will know what the budgeted item is buying. Some call this "performance budgeting." It certainly is better than the line-by-line method that presents no more details than ordered by law. It is not complicated, and is geared to an operation involving about $400,000 annually with 30 employees.

Fourth, we set up a standard service request procedure. In essence, this system:

- records every complaint or request

for service on a specially prepared form in duplicate.

- sends the original copy to the department head under whose jurisdiction the request falls.
- sends the carbon copy to the files.
- returns the original copy to the manager's office when the request has been filled, together with a report of what was done.
- sends the original from the manager's office to the files, where it is stapled to the carbon copy.

Periodically, if time permits, we summarize the complaints, thus giving us a complete administrative check-up on work being done and the type of complaints or requests for service that our citizens make.

Fifth, we unravelled the complicated procedure that developed in administering our building and zoning laws. The old building application was 10 pages long and the zoning application had three separate forms. In both cases, the forms had to be submitted in duplicate.

After some research, we devised an abbreviated form, combining both building and zoning, and making ample space for only necessary information. We also simplified the permit book so that as each permit is granted, an in-place carbon is retained. The result eases the work of the applicaants and reduces the amount of paper-shuffling by township employees.

We then prepared a public-information pamphlet to help applicants for new building. Since everyone has questions to ask and most ask the same ones, we designed a brochure to answer as many of the questions as possible. We have titled it, "So You're Building in Bensalem."

We next put administrative control at finger-tip accessibility by establishing a policy of monthly reports. We boil these down to one-page form for each township department, and keep them in a loose-leaf notebook in the manager's office. Thus at any time I have the full story of township operations. From this, also, we have been able to develop a cost system on road and street operations.

The next step was to establish control over gasoline and oil consumption and automobile repairs. Township equipment requiring records includes: 5 police cars, 1 Austin Western 10-ton, 3-wheel roller, I Galion 303 Road Scraper, 1 Minneapolis Moline SS 445 tractor with an Ottawa Model S front-end loader and Anderson Hydraulic Mower attachment.

Gas, oil, repairs and maintenance ran somewhat over $10,000 annually. While gasoline and oil had been purchased on bids, the township had hazy records and cost allocations.

Now for each vehicle we have a set of uncomplicated records that documents daily operation. We also have records for each truck on gas, oil, repairs, labor, insurance, and depreciation. When the bookkeeper prepares the bills for payment, she merely sets aside the motor-repair bills and transfers the figures to the individual vehicle cost records.

These administrative details will not of themselves solve the nagging problems of storm drainage, road maintenance or traffic control. Nor will they alone increase the efficiency of our maintenance crews. But they do help us make the right decisions and organize the internal machinery and channels of action that make Bensalem the active, vigorous community that the people expect it to be.

We will be glad to send copies of these forms to any municipality that would like them and would be grateful for comments that they might make.

Borough Hall Sprouts Wings

THE BOROUGH of Sayreville, N. J. has put a pair of wings on its dignified borough hall, so that it can care for the needs of its population which has increased from 10,000 to 20,000 in eight years.

In the new north wing, the entire basement is occupied by the Police Department and Magistrate's Court and Chambers; the first floor, by Tax and Accounting Department; and the second floor, by the Borough Clerk's office, Assessor's office and Board of Health.

New South Wing

In the new south wing the basement is assigned to local Defense Council, Engineering Department and Road Department; the first floor provides new, greatly enlarged and completely equipped facilities for the borough's Free Public Library; and the second floor provides much needed facilities for an enlarged Council Chamber for public meetings of the governing body. This new meeting room is available to other administrative agencies such as the Planning Board, Board of Adjustment, etc., together with other facilities formerly used by the mayor and council for their meetings.

The enlarged building is located on part of the 40-acre War Memorial Park which was one of the first of such parks to be dedicated by any municipality immediately following the close of World War II.

Sayreville's borough hall meets demands of municipal operations with its new wings.

Central Traffic Distributor for Downtown Stamford

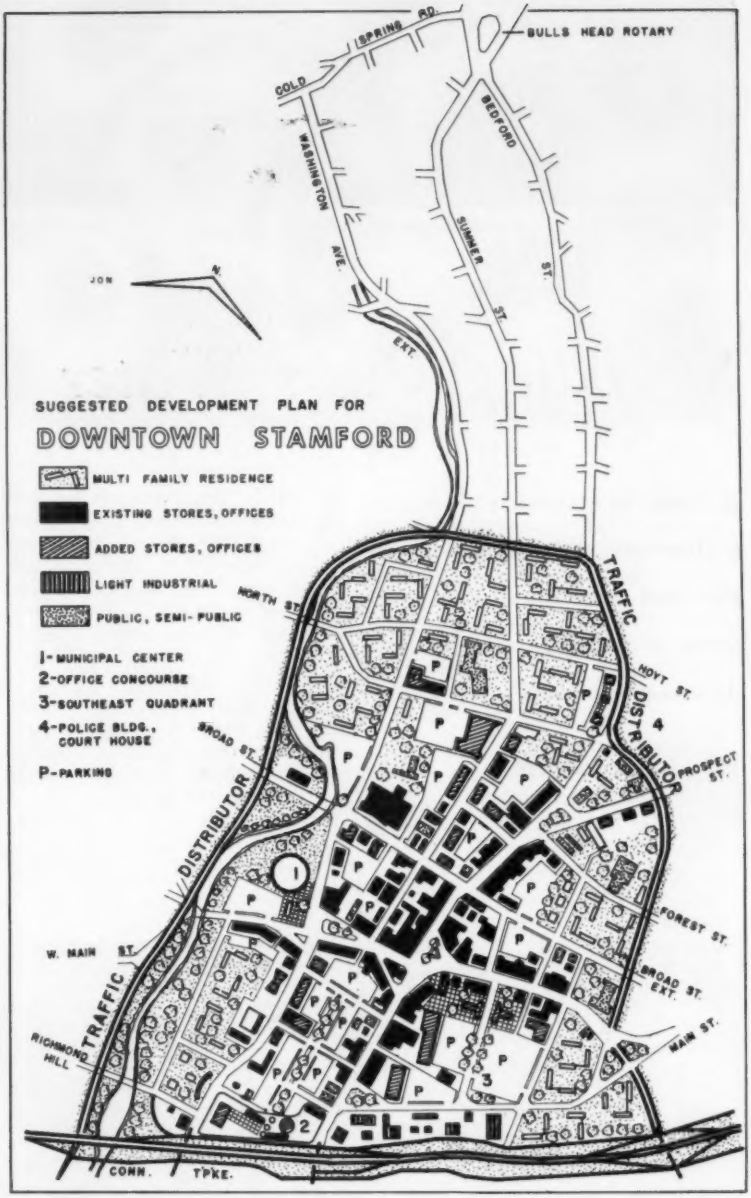
By WALTER A. WACHTER
Planning and Zoning Director
Stamford, Conn.

THE Planning Board of Stamford, Conn. has prepared a "suggested development plan" for downtown Stamford that includes the central business district, multi-family housing, a municipal center and a central traffic distributor or "strainer."

The "central traffic distributor" is the key to a markedly more efficient traffic network within the center of Stamford. This "distributor" would encircle the central business district. Its purpose is that of an umbrella, as traffic would be prevented from raining into the city center. One dozen parking facilities are located either adjacent to the distributor or one block distant, making the shopping tour pleasureable, and keeping much of the vehicular traffic completely removed from the core of the central area, yet leaving any and all shopping, parking, housing and cultural facilities easily accessible.

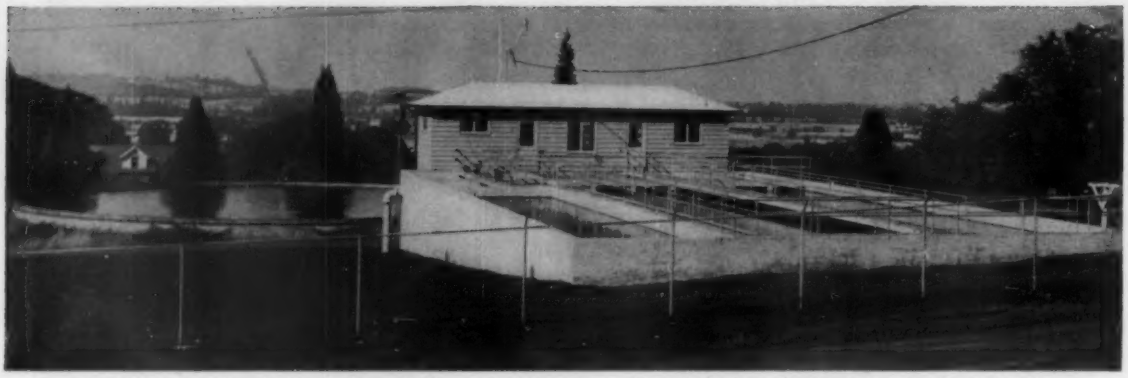
A highlight of this over-all plan for the ultimate development of downtown Stamford is the municipal center. The plan provides space for all city departments under one roof in a city hall two blocks west of its present location, together with a civic auditorium (the round spot of the left side of the map). These two structures have been integrated with two city parks, and the center would occupy all that land bounded by River Street, Main Street, Mill River Street and Broad Street.

The city has long been in need of an up-to-date structure to house its numerous offices. Municipal offices are now in three separate buildings, none within 3 blocks of another. The civic auditorium could provide facilities for local events such as basketball, ice hockey, stage, concert and public meetings. The building is designed to seat 3,000 to 4,000 people. Parking for more than 1,100 cars is indicated within a block of the auditorium, with on site parking.



Downtown Stamford, showing civic center with circular auditorium at left and distributor encircling the business district.

A part of the plan, the so-called "Southeast Quadrant" (the lower right hand corner of the plan), is being actively studied for submission to the federal government as an Urban Redevelopment Project.



All mixing and flocculating basins and filters are in the open. One of the two existing reservoirs is at the left.

Sparkling Clear Water

A little city builds a filter plant to remove the dirt and turbidity from a fast-flowing mountain stream

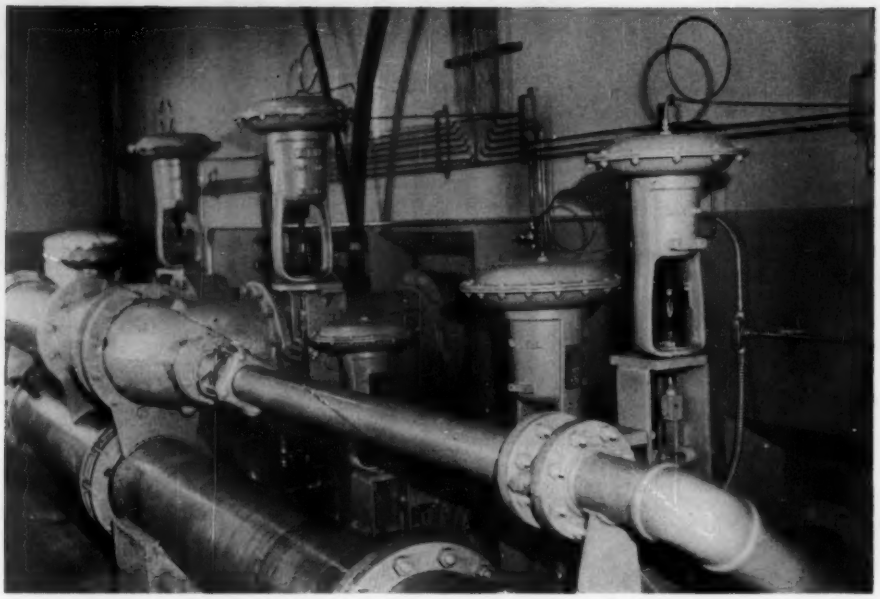
By R. E. BORLAND
City Manager
Silverton, Ore.

ABOUT four years ago the people of Silverton, Ore. decided that they would no longer drink muddy water. Even though this residential city of 3,150 persons recognized its financial limitations, the people had become tired of drinking water with remnants of the beautiful Cascade mountains floating in the glass, or of doing their laundry with water muddied by logging operations. The time had come, they decided, for clean water to emerge from their taps.

Abiqua Creek provides Silverton with water. This swift, mountainous stream draws from a watershed of 27 square miles reaching over rough terrain. Its waters become particularly roily and disagreeable during periods when heavy rainfall and melting snow crowd and erode the banks of the stream beds.

The City Council initiated action to correct this blighting influence on the community in 1955 by retaining the engineering firm of John W. Cunningham and Associates, Portland, Ore., to study the situation and recommend action. These engineers advised that a plant could be built that would give the people clear, sparkling water, and that the cost, while substantial, would still be

The second floor contains the single control panel and the main electric panel. A laboratory occupies the opposite end of this room.



All filter valves in the pipe gallery are of the butterfly type with air-powered operators.

within the ability of the water users to meet. Encouraged by this, we instructed them to prepare the necessary plans for, and supervise the construction of, the necessary purification facilities.

Ample Supply

We already had sufficient supply facilities. In 1951, the city had constructed a dam across Abiqua Creek that provided some settling—enough for the large chunks to drop out. A 14-inch pipeline brings this water to the plant by gravity flow. The line is 7 miles long and can deliver 2,160,000 gallons to the city daily. At present, this is more water than we need. A water-level control weir diverts excess raw water to a waste line that discharges into J. Wesley Webb Lake some 1,670 feet from the plant.

The engineers provided us with a plant able to purify water at the rate of 1,500,000 gallons daily and built to simple lines so that it can be enlarged easily. It provides flocculation with alum, settling and filtration in a flexible, convenient arrangement.

Flocculation

The water from the reservoir enters a flash-mix basin 3⅓ feet wide, 11 feet long and with a water depth of 10 feet. A Wallace & Tiernan volumetric-type feeder applies alum in solution form to the basin.

Flocculation then takes place in two basins, each 14½ feet square and with a 10-foot water depth. At the design capacity, each basin retains the water for 23 minutes while Fabri Valve Company paddle mixers rotate at a speed of 2.9 rpm in the first and 1.5 rpm in the second to encourage floc formation.

The water then goes to a presettling basin 14 feet wide, 60 feet long and also with a 10-foot water depth. This tank will retain the water for 60 minutes at the design flow. Corrugated asbestos baffles extend across the inlet and discharge ends to prevent short circuiting. We can bypass this tank if desired, using a rectangular concrete conduit that connects with the main settling basins.

The presettled water next flows to either of two main settling basins operating in parallel. These basins, each 16½ feet wide, 75 feet long and with a 10-foot water depth, provide 180 minutes of settling. The water enters the tanks through the distributor cones. Two 12-inch mud valves in the floor of the inlet conduit regulate the flow to the basins. Eight additional mud valves in the floor of each basin permit cleaning and draining to waste.

Filters

The water then passes to a pair of filters for removal of any remaining floc or turbidity. Each filter, designed at the conventional rate of 2 gallons per square foot per minute, has 264 square feet of surface area. They contain 30 inches of Monterey sand supported on Filtros porous carborundum plates 11⅞

First- and second-floor construction of the filter building consists of reinforced concrete and insulated wood frame, respectively.

inches square and 1½ inches thick.

To backwash the filters, the plant uses a Worthington single-stage turbine pump powered by a 60-hp General Electric motor able to deliver water at the rate of 3,900 gpm. This applies wash water to the filters at the rate of 15 gpm per square foot, producing a vertical velocity within the filters of 2 feet per minute.

A 23,000-gallon clearwell, located beneath the pipe gallery, permits a filter wash of about six minutes. However, a large-capacity connection from the clearwell to each storage reservoir keeps the clearwell filled until the reservoir water surface falls below the connecting line. The two storage reservoirs have a combined capacity of 1,258,000 gallons. We add lime and chlorine through Wallace & Tiernan feeders for final stabilizing and purifying, respectively.

To control the operation of the filters, we use Fabri butterfly valves with rubber linings and air-powered operators. Two air-operated sluice gates control the entrance of the water from the settling basins to the filters. We can control all of the plant from a single panel in the operating room, using Minneapolis-Honeywell regulators, instruments and controls.

The filter plant building consists of two stories above ground and a clearwell below. The basement and first floors are of reinforced concrete; the second story superstructure is of wood frame, insulated to insure warmth. The rooms are electrically heated.

The first floor houses the pipe gallery, chemical storage, and chlorinator rooms. A laboratory, operating room and chemical feeder room occupy the second floor.

Distribution

Although most of the city is served by gravity flow, we do have two areas that require pumping. One contains 128 homes, a hospital and a clinic. Here a 500-gpm Fairbanks-Morse pump boosts the water to a 25,000-gallon Pittsburgh-Des Moines elevated tank to serve the area. The second area has 80 homes, and here a 200-gpm Fairbanks-Morse pump keeps a 22,000-gallon elevated tank full to serve the area. These facilities were not part of the treatment plant project.

We financed the improvement by a voter-approved $175,000 general obligation bond issue. Bonds mature serially at the rate of $9,000 per year. The total cost of the plant, including engineering fees, land, financing and legal work, came to $129,831. Actual construction cost amounted to $20,385 less than the original engineering estimate.

L. B. Read, Portland, Ore., held the general contract for the filter plant; Vincent C. Neal Excavating Co., Salem, Ore., built the waste line.

The project started under the administration of Mayor Harry V. Carlson, Sr., and was completed under the present administration of Mayor Carlton A Hande, Jr.

We Make Turf Aerification Efficient and Convenient

SOIL AND TURF aerifying are essential to good turf management. Aerification reduces soil compaction and permits ready introduction of fertilizers, water, and air.

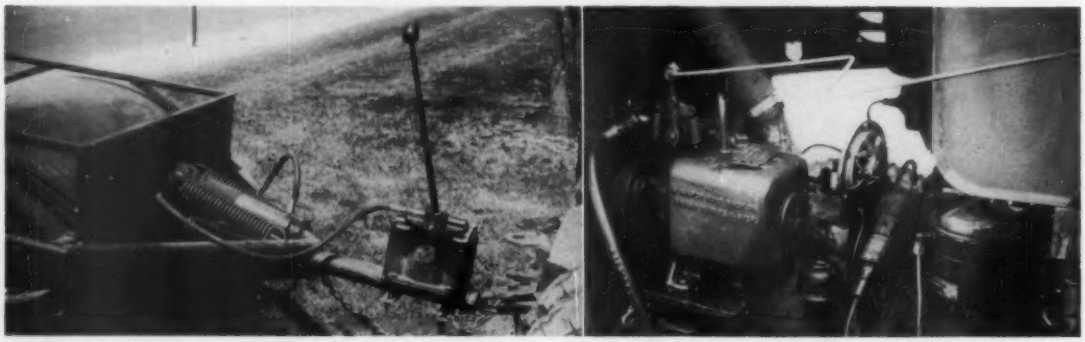
We have been able to supply aerification efficiently through the use of our tractor drawn West Point Aerifier, Model F-G-51. This unit is equipped with 108 spoons mounted on rotating drums set between the wheels. The wheels permit the operator to raise or lower the aerifier hydraulically, penetrating the turf to a depth of approximately 4 inches.

We use the aerifier on baseball diamonds, Little League fields, and park areas. On baseball diamonds it is often desirable to aerify the base lines and other skinned areas for the purpose of softening them or reducing compaction. On the other hand it is often desirable to aerify the turf without disturbing the "skinned areas." In parks we often have to haul the aerifier across sidewalks and streets which would bend the spoons if the machine was not raised. Obviously, such operations require frequent raising and lowering of the aerifier spoons.

When the aerifier was received from the manufacturer, it was equipped with a hand-operated hydraulic pump attached to the drawbar, a location not convenient for the tractor operator. The pump required 36 positive hand motions to raise the aerifier to a transport position. We found this extremely time consuming and tiring to the operator. This developed an attitude of indifference in the operator.

In an attempt to minimize these difficulties we "borrowed" a Monarch HY-LO pump which was mounted on our Jeep for the purpose of raising and lowering our snowplow. The Monarch pump model UTH-J was belt-driven from the fan on the Jeep engine. By adding a temporary mounting bracket to our Worthington tractor and changing fan belts, we created an interchangeable power plant. An additional length of hose was run from the engine mounted pump to the aerifier ram. Two fingertip motions are now needed to raise and lower the aerifier.

EDWARD F. BRARMANN, JR.
Supt. of Parks and Shade Trees
Englewood, N. J.



Two fingertip motions are needed to raise and lower the aerifier now that motor driven pump has replaced manual pump.

City Hall is flanked left by the public health building and auditorium and right by the police facilities building.

City Staff Moves—Bag and Baggage . . .

. . . as Flint, Michigan dedicates spacious new Municipal Center featuring progressive planning—maximum use of topography

BRAVING the justifiable envy of most community administrators who "make do" with out-moded facilities, city employees of Flint, Mich. have moved en masse into their brand new five-building Municipal Center.

In contrast with the old city hall, where the city affairs of 175,000 people had crowded officials and employees into dark, poorly ventilated cubby-holes, the new Municipal Center, with its campus-type arrangement, provides a combination of spacious efficiency and beauty in a complex of stately buildings on landscaped grounds.

The five-level, 108,600-square-foot city hall serves all city administrative functions, providing council chambers, administrative offices, engineering and planning, finance, public works and Clerk's office. The municipal courts building, connected by direct passageway with a 90-prisoner jail area, contains four municipal courtrooms and related areas for officials of the court and visiting attorneys. The police headquarters building is an integrated unit, complete from shooting range to radio room. Police vehicular traffic flows to garage and service areas from a service drive at the lower level. Part of the garage adjacent to the

Beauty of landscaped plaza is enhanced by split-level design.

Bridge ramp provides two-floor access to the public health building.

prisoner entrance is designed as a security area for bullpen lock-up. The public health building is a two-level structure with public entrance on the street level and service entrance from the mall.

The structure most interesting in design is the public health auditorium, constructed of a reinforced concrete spherical segment dome supported on eight graceful peripheral columns with brick and glass curtain walls in the bays. It is functionally designed, with 250 seats installed in the dish-shaped floor. Group discussion is provided by perfect visual and audio communication between any two occupants regardless of location. The auditorium, flanked on two sides by an L-shaped reflecting pool, is the focal point of the entire Center.

The site for Flint Center was once a run-down section on the main street several blocks from the old city hall. Before that it had been a lake, dried up through the years and filled with bricks and rubble. The contour of the lake, with its perimeter on high ground at level with the adjoining streets, and its bottom approximately 15 feet below, provided an opportunity for designers to provide each building with entrances on two floors, one at street level, the other opening on the central mall. Public areas accessible through entrances at grade on two floors proved economical in reduction of vertical transportation and a decrease in necessary circulation space.

The central portion of the former lake bottom was converted into a landscaped sunken garden, joined on one side by the reflecting pool.

All structures are of reinforced concrete, with window walls of aluminum, glass and porcelain enamel panels. Building masses are framed with white Georgia marble to lend dignity and permanency to the group. Interiors feature flexibility, with movable steel partitions in most working areas. Recessed lighting, color accents in ceramic tile and carefully positioned wood paneling provide efficient and attractive surroundings.

Designers

Building consultant for the city was Henry M. Foley; architect-engineers were H. E. Beyster & Associates, Inc., Detroit; design architect was John T. Wilberg; and L. G. Linnard of Maumee, Ohio was landscape architect.

Pipeline Laid on Rails Through Miniature Tunnel

TO FACILITATE placing two 9-foot concrete pipelines a New Jersey utility recently used a narrow-gauge track laid through a tunnel beneath a railroad right-of-way. The ground was too wet for conventional methods of installation. The Public Service Electric and Gas Company of New Jersey needed the pipes to carry discharge water from giant twin-generator units in its nearly-completed Bergen Generating Station.

Using the same coffer-dam methods used in building the Lincoln Tunnel, engineers cut two 12-foot tunnels beneath 13 tracks of the New York Central and New York Susquehanna & Western Railroads. The tunnels were lined with ½ x ¼-inch steel plate stiffened every 16 inches with reinforcing rings. As the plate was set, voids between it and the bore were grouted to guard against any shift of the earth under the roadbed.

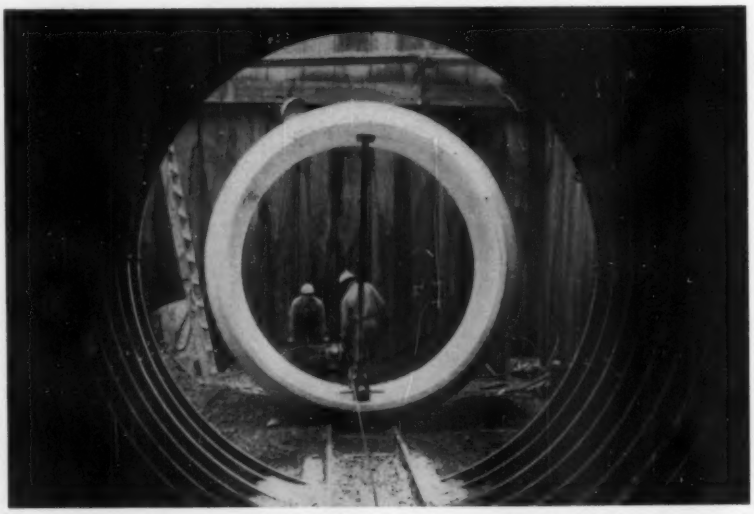
Next, railway tracks, 2 feet apart, were laid the length of the tunnel floors. One at a time, 6-foot sections of pipe were nested between the rails at the entrances to the twin shafts. A bridle was attached to the rear lip of each pipe section to provide a hook-up for a tugging cable. The bridle was held in place by a screw jack inserted vertically within the pipe section, thus preventing the bridle from riding out of place and breaking the pipe lip. This ready, an Ingersoll-Rand air "tugger" pulled the section into place from the tunnel exits. A Worthington Model 600 and a Caterpillar Model D-1300 air compressor supplied power for the tugger.

The contractor placed one 6-foot section of pipe per hour using this system.

The American-Marietta Company made the pipe used for the project. Walls were made 9 inches thick and were reinforced with two cages of steel-welded wire fabric of the heaviest gauge yet used for 9-foot pipe. Strength was needed to withstand both earth load and train vibration.

After all sections were laid, joints were cement mortared. Then pea gravel, up to ⅜ of an inch was blown in through the lifting hole of each section. Sand bags were packed between the pipe and the steel plate liner at the ends of the shafts to keep the gravel in place. Finally, portland cement grouting was pumped into the gravel, sand bags were removed, and shaft ends were faced with 9 inches of concrete.

Now the discharge pipes can pick up discharge water from a rip-rap lined open canal, carry it beneath the railroad tracks, and empty it into a canal leading to the Hackensack River.



An air-powered tugger pulled this six-foot section of 9-foot pipe into the tunnel by means of cable and bridle-and-screw-jack rig shown inside the section.

The Manager Plan Is Good But...

. . . survey of criticism by 500 California manager-plan councilmen sounds a warning

By VICTOR E. BARTON
City Administrator
City of Madera, Calif.

MOST city managers believe that council-manager local government is best, or they would not be parties to it.

A prime qualification for a city manager must be a feeling of dedication—one that is mostly healthy and good. But this dedication can become an isolation chamber at times to blind and deafen the administrator to criticism whether that criticism is justified or not.

Complaints may come from any direction. But shortcomings are found in city managers by their bosses—the councilmen—and what they say, think and feel about the council-manager plan is of the greatest importance. Actions and decisions of these citizens are as often influenced by their attitudes toward the plan as by any conglomerate technical and theoretical ideas or evaluations that generally nourish this form of government.

Attitudes of councilmen toward the plan were recently polled in California council-manager cities. Cities not under the plan were not considered because adherence to different forms of local government were manifestations that no thought had been given to the council-manager form, or that antagonism by the council had prevented its acceptance.

Pinpoints Criticism

The survey was designed to benefit working managers by pinpointing areas of most persistent criticism in cities where the council-manager plan was already operative. While the fact that the cities were operating under the plan seemed to indicate that the form was firmly entrenched, it should not be assumed that the council-manager plan is flawless and free of justified criticism from the councilmen themselves.

Five hundred elected officials in 100 California council-manager cities were asked whether or not they favored their form of local government. To approach a true evaluation, complete anonymity was guaranteed, and only summaries of answers collected were to be used in evaluating reports.

The number of candid responses was surprisingly high. Although most of the data were gathered by questionnaire, some were the result of personal interviews.

An overwhelming majority (more than 83%) favored the council-manager form, offering no definite criticism of it or hostility towards it.

The remaining 17% either criticized individual aspects of the council-manager plan or opposed it outright.

The Critics

About 14% had specific criticisms. Most frequently heard was the charge that deficiencies in personal qualifications of an individual manager could render the plan unsuccessful in a given city. The manager lacking breadth of managerial talent, good moral character or an acceptable engineering background could scuttle a workable plan.

Next in order was the belief that the manager form needed more study and could stand improvement, especially in utilization of citizen committees. These critics suggested possible substitution of an elected chief administrative officer as being more democratic.

Other attitudes reflected belief that the success of a manager plan was limited to cities with a population of less than 500,000.

The charge that many managers ignore the separation of policy and administration was made by some respondents who hold that managers who tamper with policy threaten success of the very often council-manager plan. This is a ticklish subject since no one has defined clearly where policy stops and administration begins.

A small but persistent number advocated maintenance of elective administrative positions (city clerk, city treasurer and city attorney) as necessary to successful council-manager operation. Election of a full-time mayor and better communication channels to the citizenry also were suggested as improvements to the plan.

The "Aginners"

Only 3% of those polled were definitely against the council-manager form of municipal government.

Attitudes that summarize beliefs of this group are:

1) The theory is good, but it does not work out in practice.

2) City managers are unqualified dictators who think they are God's gift to municipal welfare.

3) Citizens lose their individual voice in the operation of their government.

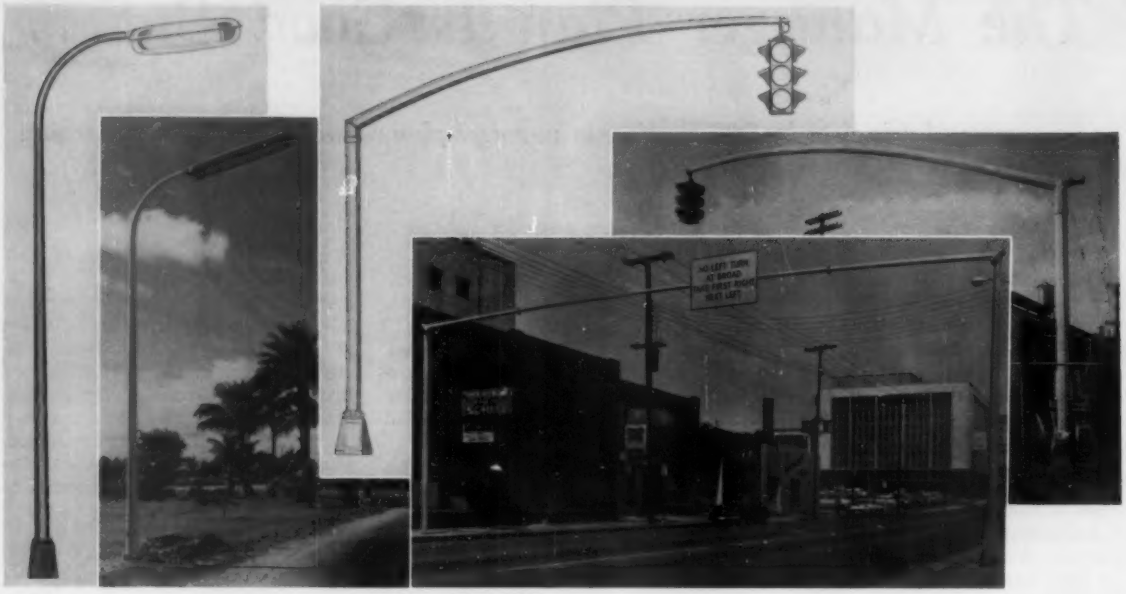
4) An elected mayor should appoint a city administrator.

5) We are just not happy with this form of government.

The comparatively small percentage of criticism and antagonism toward the manager plan reflects some valid and some invalid attitudes and beliefs, but none can be brushed off. The fact that even a few councilmen believe these things about the plan should be warning enough. And this warning is the greatest real value of the California survey.

The longer these councilmen believe as they do—rightly or wrongly—the more difficult will be the city manager's job. The esteem and the authority of his profession must suffer. It is therefore vital for each manager to be alert for unfounded beliefs, then make a positive effort to neutralize them with tact and fact. Each one must strive to avoid situations that might evoke reasonable and justified criticism.

Outdoor Lighting



Some New Pole Designs

STREET lighting equipment of all kinds has been on the move since the advent of fluorescent street lighting. Shown here are some new pole designs by Kerrigan Iron Works, Inc., Nashville 2, Tenn.

The street scene shows an overhead sign support which soon will support lane markers to guide motorists into the new Capitol Hill development in Nashville, Tenn., featured in THE AMERICAN CITY for November 1958 on pages 136, 137, 139.

At the extreme left is a design drawing of a new davit-style lighting standard made in both steel and aluminum. Alongside it is one of an installation of these poles in Miami, Fla. at Watson Parks, a new park which will contain flowers, shrubs, and trees from all over the world.

At the far right and in the upper center is a new cantilever design, which Kerrigan calls the Classic. It should go well with the great new highways and streets and is in keeping with the trend to functional streamlined poles. Installation and maintenance are simpler.

Tested for winds of hurricane velocity, it is available with arms 10, 12, 15, 18, 20 and 25 feet in aluminum and up to 35 feet in steel. Its matching lighting standard has arms 4, 6 and 8 feet, in both steel and aluminum.

Scotland Asks Better Taste in Street Furniture

By ALISTER MAYNARD, *Chief Executive*
The Council of Industrial Design
Scottish Committee
Glasgow, Scotland

CITY streets and, to a lesser extent, country roads have for long been the scene of the uncoordinated gathering of a great number of miscellaneous objects; too many lamp standards and too few litter bins, fairly well designed telephone kiosks but often badly designed bus shelters, a multitude of signs and notices and a network of wires and cables. Add to this a multiplicity of styles in architecture—some good, some fairly good and some bad; the result is chaotic.

City engineers are responsible for buying most of the items enumerated, although not all. They cannot be expected, however, to produce a higher standard of design than is available on the market, nor can they be held responsible for not making use of the best that is available if they are bound by the "lowest tender" system.

There is undoubtedly room for improvement in the design of all sorts of street furniture and there is also a need to allow the "lowest tender" system to be applied with some flexibility. These are not, however, problems that can be left to "the experts" to deal with, for it is public opinion, actively and widely expressed, that will ensure such improvements.

It is, of course, the lamp standards that dominate

(Continued on page 121)

Taken from *The New Scotland*, a Scottish review.

THE PTL is excellent for estate type subdivisions, driveways, parks, hotel grounds, and recreation areas. The design lends the elegance of low, even lighting and the safety of good light with a minimum of glare. Subdividers and landscape architects will find the PTL well suited to their esthetic needs without sacrificing light efficiency.

New L-M Post Top Light Combines Appearance with High Efficiency

The new L-M PTL (Post Top Luminaire) combines decorative appearance with a highly efficient optical system. It is specially suitable for lighting driveways, residential and institutional grounds, schools, stores, subdivisions, parks, swimming pools, railway platforms, bus stations, and other places where the designer wants both good appearance and efficient light utilization.

Rigidly Built

The PTL combines a rigid spun-aluminum reflector, an efficient Holophane® refractor, and a sturdy aluminum mounting base. Reflector swings open on hinge for easy cleaning, and for replacement of lamps and ballasts.

Reflector and base in natural brushed aluminum, or choice of pastel colors. Available with small cadmium-sulphide photo control, which automatically turns light on at dusk and off at dawn.

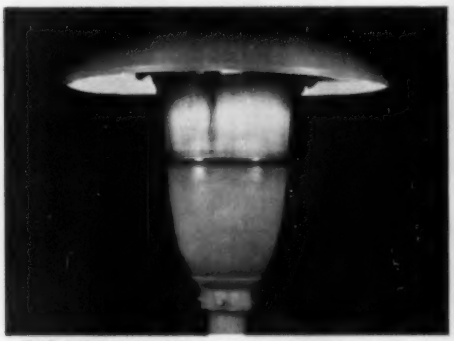
Choice of Five IES Patterns

For use with incandescent lamps up to 10,000 lumens, or 620 watts multiple; or with ballast in fixture for mercury vapor lamps up to 250 watts. Choice of five IES light patterns; types I, II, III, II 4-way, and V.

Two styles, for mounting on 3-inch or 7-inch poles. Tapered aluminum poles are available, to provide from 11- to 25-foot mounting heights.

Attractive Low Prices

Prices of the PTL luminaire start at $44; aluminum poles $46 and up. Mail the coupon below for free data sheets and details. Or contact any of the L-M offices listed on the other side.



THE NEW L-M PTL provides elegance of appearance and efficiently controlled light distribution. Available in brushed aluminum, or pastel colors, for 3- or 7-inch poles. For incandescent lamps, or with ballast for mercury vapor lamps. The PTL is also available with small photo control. Prices start at $44.

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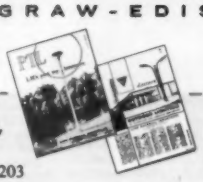
McGRAW-EDISON COMPANY

McGRAW EDISON

See Other Side

Outdoor Lighting



LINE MATERIAL INDUSTRIES, Milwaukee 1, Wisconsin

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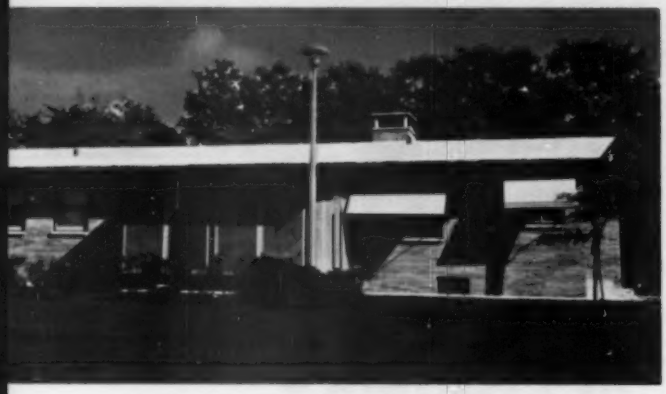
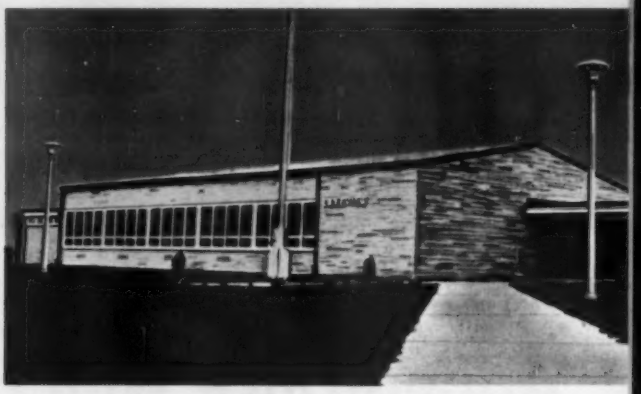
NEW L-M POST TOP LUMINAIRE

THE PTL is excellent for drive-ins, restaurants, hotels, motels, store fronts, shopping centers, water-front areas, railway stations, and many other applications.

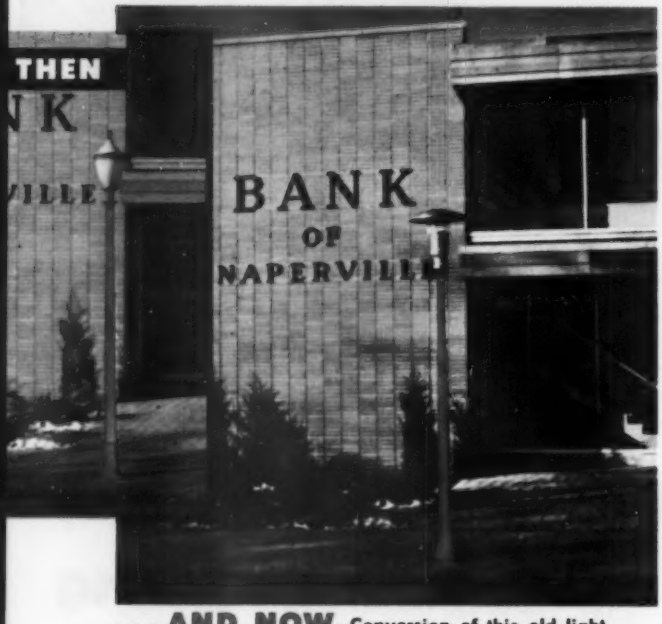
Either incandescent or mercury lamps may be used. When the PTL is used for mercury vapor, the ballast is mounted in the fixture where it is easily accessible.



FOR INSTITUTIONAL OR RESIDENTIAL ground lighting, the PTL offers fine appearance, with efficiency. It spreads a soft, uniform light over a large area, with minimum glare.



NEW SCHOOL—NEW LIGHTING! L-M Post Top Luminaires add beauty to the facade, and provide excellent decorative and safety lighting for the area around the building.



. . . AND NOW. Conversion of this old light standard with a new PTL is more in keeping with the modern appearance of the building of the Bank of Naperville, Ill. The PTL will modernize most existing upright standards by direct replacement at a cost comparable to the replacement of two old-fashioned ornamental glass globe and canopy combinations.

For detailed specifications, mail the coupon on other side— or phone or write any of these

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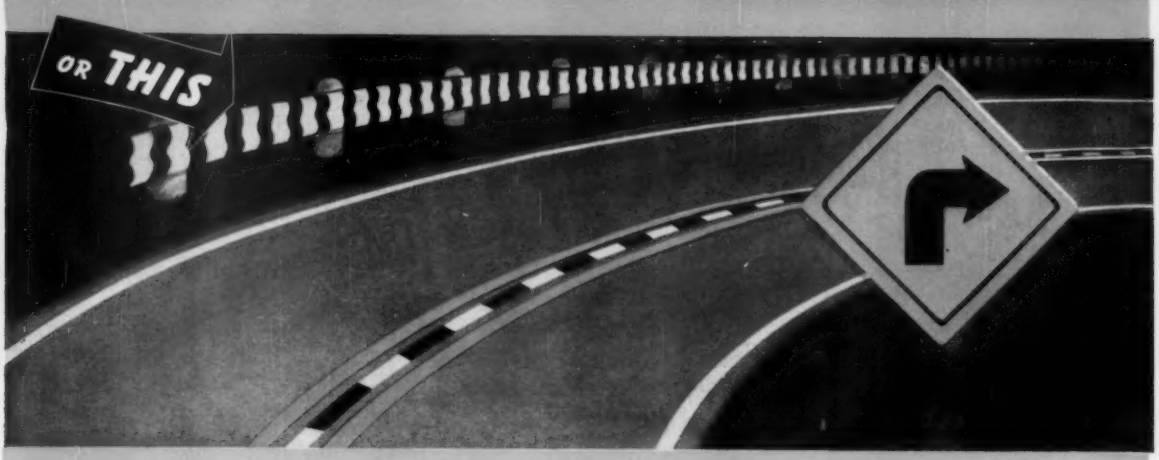

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Signs employing the finest reflective materials are adversely affected in a number of ways, such as by moisture, thermal changes and dirt . . . as well as acts of vandalism, accidental breakage and normal wear and tear. Further, the sulphides in industrial fumes attack glass beads containing lead, causing them to turn dark, with a consequent loss of their reflectiveness and visibility. Maintaining adequate visibility through fair weather and foul for maximum safety is a *must*. To ignore this fact is bargaining with lives. So, it is just common sense to buy lead-free beads that won't turn dark. That's why street and highway engineers specify Flex-O-Lite Lead-Free Reflective Glass Beads —with full confidence in their maximum brilliance and lasting reflectivity throughout a longer life. Specify the beads proved best by test. Insist on Flex-O-Lite Lead-Free Reflective Glass Beads. Write for free, informative brochure.

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- **FREE-FLOWING REFLECTIVE GLASS BEADS**—Won't agglomerate. Contain no injurious waxes, oils or resins. Offer perfect adhesion to any suitable traffic bead binder. Economical.
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FLEX-O-LITE MFG. CORPORATION

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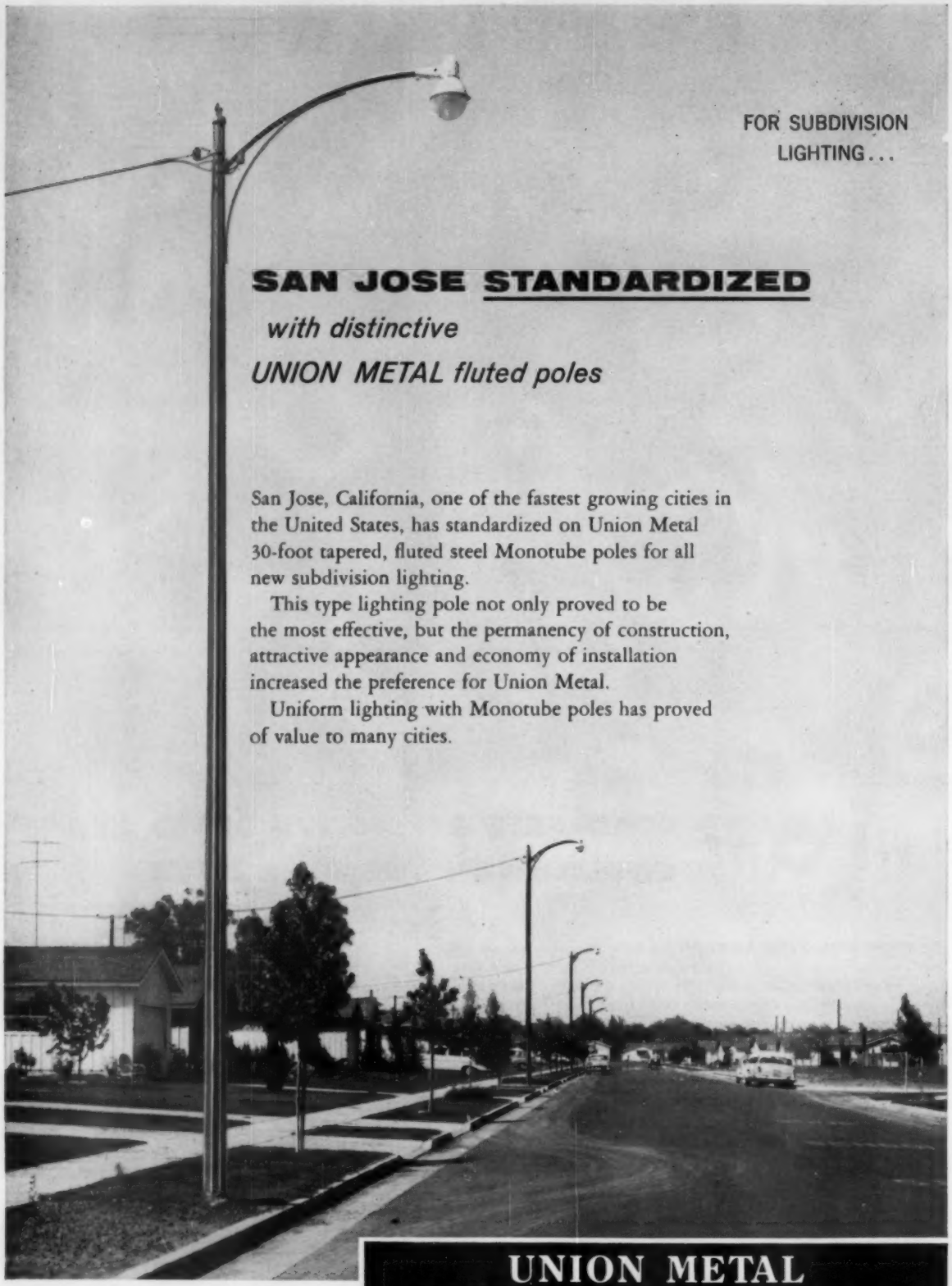

FOR SUBDIVISION LIGHTING...

SAN JOSE STANDARDIZED

with distinctive

UNION METAL fluted poles

San Jose, California, one of the fastest growing cities in the United States, has standardized on Union Metal 30-foot tapered, fluted steel Monotube poles for all new subdivision lighting.

This type lighting pole not only proved to be the most effective, but the permanency of construction, attractive appearance and economy of installation increased the preference for Union Metal.

Uniform lighting with Monotube poles has proved of value to many cities.

Residential subdivision lighting... standardized with 30' Monotube poles mounting incandescent luminaires.

UNION METAL

The Union Metal Manufacturing Company

Canton 5, Ohio — Brampton, Ontario, Canada

MONOTUBE LIGHTING POLES

(Continued from page 116)

the scene, particularly in some of the new roads where avenues of heavy concrete columns line the sidewalks. There is nothing particularly new about the concrete column; it has been in use since 1915 and became well established during the 1930s. It has the great virtue that it requires no maintenance. On the other hand the nature of the material requires a greater thickness around the control box than with a metal column. Something is being done but much more could be done about reducing the dimensions of this control equipment itself—fuses, time switches, etc.

Except in a few cases where the units of a lighting system are part of the appearance by day of, say, a town square or a bridge, lighting columns should be unobtrusive.

At the request of the Ministry of Transport, the Council of Industrial Design maintains a list of approved lamp standards, and the Ministry grant of half the cost of installation on trunk roads is dependent on the adoption of one of these approved designs. This refers only to the standards. There is no way of ensuring that a suitable lantern is put on the top. The problem is complicated by the fact that standards and lanterns are not made by the same firm. There are, nevertheless, today a number of well-designed standards available both in concrete and steel.

In the countryside good and legible signposting is certainly as important as in the towns, and it needs to strike a very fine balance between clarity and easy recognition on the one hand, and unobtrusiveness on the other. Great progress has been made in certain districts towards the provision of an adequate number of well-designed litter bins, but this is not yet nationwide and the variety of good designs, suitable for different localities and different conditions, is still very limited.

Leaving aside advertising billboards which, at their best, can be striking in an agreeable way and at their worst, are often eye-sores, there remains the ever-increasing number of petrol stations which are growing up not only on the outskirts of our towns but also in our villages and sometimes even in the remoter parts. The big oil companies seem, on the whole, to have taken a realistic view and, resisting the temptation to make them into imitation thatched cottages, have allowed them to stand for what they are, with their pumps and their signs designed by good professional designers, and their well-mannered buildings designed by imaginative architects.

Street Lights and Aircraft

By ARTHUR GRIMM
Director of Public Works
Des Moines, Iowa

THIS is our solution of a problem involving street illumination of major highways in a clear zone of the Des Moines, Iowa Municipal Airport.

The problem was how to continue a 150-foot staggered spaced, 30-foot high-mounting, mercury vapor lighting system into a clear zone with a 20-foot maximum height restriction. Minimum average maintained footcandle value of 1.5 must be produced on a 48-foot concrete pavement, with even distribution and without glare. Do this for 500 feet on Fleur Drive (STH 123) and for 750 feet on Army Post Road (STH 28), both streets carrying large volumes of high-speed traffic.

Fluorescent, mercury vapor and incandescent light sources were considered. Isolux charts were of little value because of the 20-foot mounting height. Glare and uniform distribution were found to be the major factors. Insufficient data led to a decision to construct a test installation.

Accordingly, three poles on a staggered 90-foot spacing with a fourth pole opposite the center pole were erected at the site. This allowed a staggered or opposite arrangement for testing purposes. Fluorescent and mercury vapor units were installed together at the 20-foot height with independent controls for each system. Readings at pavement level were made and the results and the systems studied. Costs, intensities, glare and distribution were the final criteria on which we based our choice.

The solution was a 60-foot staggered spacing to eliminate dark spots occurring with the 90-foot spacing. The 175-watt mercury vapor unit with a Sylvania silver-white bulb, rated 7,700 initial lumens, in a Line Material open-type refractor luminaire with Type III glassware was the final selection.

The actual installation produced an average intensity of 2.5 footcandles with a uniformity ratio of 2:1. The Street Lighting Division of the Public Works Department, the Engineering Division of Iowa Power and Light Company and various manufacturer's representatives cooperated to produce a fine result.

No dark spots with this 60-foot staggered spacing of 175-watt mercury vapor units near Des Moines Airport.

A WALD Innovation

Introducing an Ingenious NEW SAFETY DEVICE

THE WALD ELECTRICADE

Portable Beacon and Power Plant

Model 2000W

Model 500W

- Warns The Public
- Provides Portable Power Source
- Protects Workers

...during emergencies or regular maintenance duty

Wald Electricade answers the need for self-contained, fast-action equipment to cope with the increased tempo of our times. When accident, power failure, flood or other crisis strikes, Wald Electricade, with its brilliant reflective face and penetrating flashers speedily creates a safety barricade and protected working area. A weather-proof gasoline generator furnishes current for energy lighting and power for drills, hammers... any required tools. The sturdy chassis, designed for ***easy towing*** and ***quick set-up,*** withstands winds up to 50 MPH. A long list of easily changeable standard legends is available. Two sizes available — 2000 watt and 500 watt.

Electricade continues dependable warning signals up to 90 hours.

Electricade supplies extra electric power for on-the-site operations... auxiliary lighting, power for tools and accessories, etc.

Electricade's portable source of electricity can also be used for Floor Lamps, Emergency Lights for Underground Utility repairs, Pullmotors, Sprayers, Shop Lights, Emergency Pumps, etc.

Electricade offers 17 brilliant, custom-made panels with standard warning and direction legends. Also available to ELECTRICADE users, reflectorized blank panels for imprinting special messages.

Electricade can be towed in tandem where multiple units are needed for interval warnings in major emergency.

Electricade has many additional non-emergency uses such as: Inspections, Repairs, Advertising, Road Information, Temporary Instructions.

Write for Bulletin EL59

WALD INDUSTRIES, INC.

HUNTINGDON, PENNA.

Peebles Corner— A Bright Spot In Cincinnati

Evenly distributed illumination, with fixtures tilted 15 degrees from the horizontal to insure adequate light on the street, sidewalks, and store fronts.

PEEBLES CORNER, with its more than 400 businesses, maintains the lead as one of the most attractive shopping areas in Cincinnati, Ohio.

The stage was set recently for a three-day "spotlight" celebration when City Manager C. A. Harrell flipped the switch that flooded Gilbert Avenue and McMillan Street with soft, white light. Pedestrians and traffic now pass with safety under a mantle of 89 fluorescent luminaires.

Keeping ahead of progress is the aim of the Walnut Hills Merchants and Civic Association, which together with prominent citizens was responsible for the "new look." The recent installation made by Cincinnati Gas and Electric is the latest change in the area.

A few statistics will illustrate the change worked by the new lighting system. The 4-lamp fluorescent luminaires manufactured by Line Material Industries are capable of emitting 21000 lumens of light. They are mounted 28 feet above the street surface and spaced 60 to 75 feet on an opposite arrangement. The light is reflected down to the street surface and tilt angles of 5 to 15 degrees are employed to obtain the best possible light distribution on the street, sidewalks, and store fronts.

The old system consisted of incandescent, ornamental luminaires, rated at 4000 lumens each. They were mounted 12 to 14 feet from the ground and were spaced almost twice as far apart as the new units. Because the post top was designed without a reflector, much of the light output was directed up and away from the street surface.

A feature of the fluorescent system was economy of installation, made possible by mounting the luminaires on the same poles that had been used to suspend the trolley wires.

New lighting has increased the level of illumination seven times that of the old incandescent system. The average light level is three footcandles on the street surface. Safety for both automobile traffic and pedestrians is greatly improved and Peebles Corner is a bright spot of Cincinnati.

By CLARK T. BALLARD
Industrial Engineer, Electrical Sales
Cincinnati Gas and Electric Company

Longer Life for Westinghouse Mercury Lamps

AN INCREASE in life rating and a decrease in price of the exclusive line of H24 mercury lamps for series street lighting has been announced by the Westinghouse lamp division, Bloomfield, N. J.

The life rating increase is from 6,000 to 7,000 hours. The H24 line of mercury lamps was developed recently by Westinghouse engineers to operate directly from a standard 6.6 ampere series street lighting system without the need of individual lamp ballasts, which had been required previously. This results in substantial savings in initial costs. Only a few changes are necessary in the circuit control equipment using the same 6.6 ampere constant current circuit.

Several years' testing indicated such excellent performance of the lamps in actual use that the new life rating of 7,000 hours was made. The lamps are available clear, with a rating of approximately 20,000 initial lumens, and in the color-corrected Standard-White, with a rating of 18,500 lumens.

The dangers of cracks due to moisture are eliminated with the Weather Duty lamps and there is no loss of light due to deterioration of the soft glass bulb when exposed to the atmosphere. Weather Duty mercury vapor lamps are recommended for heavy duty service. They are made with outer bulbs of a hard and tough glass that resists breakage due to exposure to rain, snow, residual wash water, and large flying insects.

Welsbach maintains 146,200 street lights and 8,000 traffic signals in two boroughs of New York City with 115 trucks.

Maintaining Trucks That Service New York's Lights

MAINTAINING street lights and traffic signals in Queens and Brooklyn in New York involves 146,200 street lights and 8,000 traffic signals which have from two to eight lights each; the Welsbach Corp. also installs new traffic signals in all five boroughs of the city. From their Long Island City facilities the electrical contracting company sends out fleets of vehicles which maintain lighting. They travel 1,250,000 miles annually, mostly in 1 and 1½-ton Dodge trucks.

115 Vehicles

Welsbach operates 115 vehicles, 60% of them equipped with two-way radio. This fleet is maintained by 15 mechanics. Says the corporation's manager, James R. Campbell, "We have good equipment and we operate with quality fuels and lubricants. We use Gulf Oil Corporation's gasoline and Dieselube HD motor oil. Our business is lighting rather than being experts at fleet truck maintenance. We change oil and lubricate the vehicles every 1,000 miles and change filters every 2,000 to 5,000 miles. By the end of the fifth year we feel we more than have our money out of vehicles, including the cost of good fuels, lubricants and maintenance."

Replacing a bulb on high.

Minimum Light to Stop Car in Time

HOW MUCH light is needed on highways at night to see obstacles in time to stop a vehicle safely from a speed of 30 miles an hour? Forty miles an hour? Fifty miles an hour? Answers were sought in Columbus, Ohio. Tests began at midnight of October 17, 1958 on a quarter-mile stretch of Broad Street.

Life-sized, three-dimensional figures of an 11-year-old child and her black terrier were observed under existing street lighting at intervals of 25 feet by a team using a new visibility-measuring instrument placed in the position of an on-coming car.

The Illuminating Engineering Society says that these tests were the first outdoor lighting experiments ever made with the new measuring device; illumination experts believe it is the most accurate and sensitive of its kind ever developed.

Additional post-midnight tests will be run with models placed in various spots between street lights.

The Columbus highway-safety lighting tests were conducted by Dr. H. Richard Blackwell, newly-appointed director of the Ohio State University's Institute for Research in Vision. These tests are based on a revolutionary new system which determines the amount of light the human eye requires to perform without stress seeing tasks of varying degrees of difficulty. Dr. Blackwell developed the system during an eight-year laboratory study sponsored by the Illuminating Engineering Research Institute.

NEW

P&K 30-FOOT ALUMINUM TRUSS ARM

controls wide intersection

The photo above shows the busiest intersection in the city of Yonkers, modernized with a 5-lens signal-head. That's right—a 188-pound signal-head extends over this wide intersection supported by a modern 30-foot P & K aluminum truss-type-arm traffic signal standard. It's another first for P & K! Designed to speed traffic and reduce accidents, this new installation has done both!

And, *as a bonus in advance*, Yonkers enjoyed the advantage of simplicity of installation. After all, P & K aluminum standards and truss arms, though exceptionally strong, are light in weight. What's more, this modern unit never needs painting—will keep its good looks for years to come—a credit to the good judgment of the traffic engineers who selected it.

For more facts on this new 30-foot arm and the many other traffic signal and sign standards and spans made by P & K, write for Brochure TE-1.

P & K IS ALWAYS FIRST WITH NEW IDEAS

James Colombo of Traffic Control Equipment Corp. Hackensack, N. J., P & K distributor:

This new Yonkers installation, one of my most recent jobs, is the type of progressive engineering I've come to expect from P & K. Naturally, as specialists in the design of traffic signal standards and spans, they are always at work, not merely keeping pace with traffic problems, but anticipating the requirements of traffic engineers everywhere.

P&K PFAFF & KENDALL
84 FOUNDRY ST., NEWARK 5, N. J.

BRANCH SALES OFFICES: MIAMI, FLORIDA; BURLINGAME, CALIFORNIA
IN CANADA: POWERLITE DEVICES, LTD., TORONTO, MONTREAL, VANCOUVER
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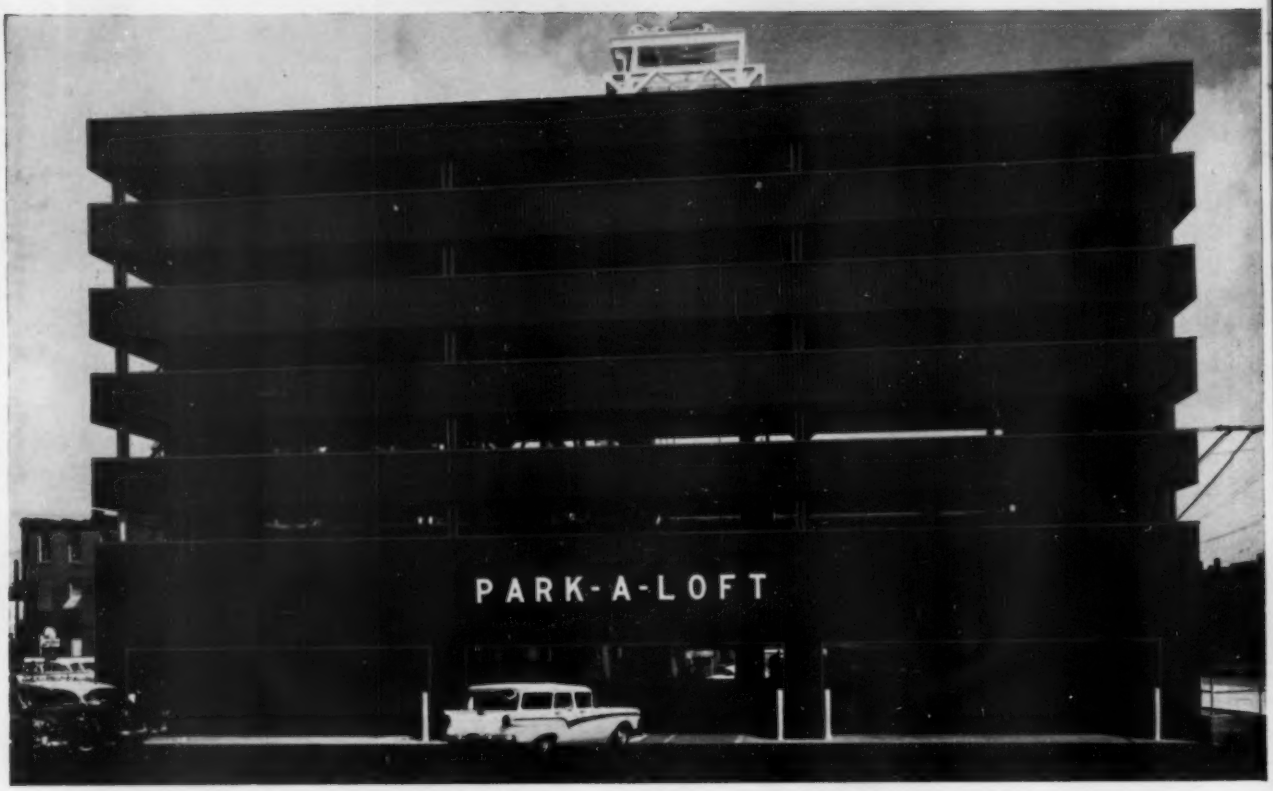
Park-A-Loft®...



New 264-car Park-A-Loft at Parkersburg, West Va. Frank W. Gove, Jr., Mayor and Chairman of Parking Commission; Jesse D. Folwell, architect; Wilbur Smith & Associates, consulting engineers; Dresser-Ideco Company (Division of Dresser Industries, Inc.), general contractors.

everything that's new in a mechanical parking garage

For the first time, a mechanical parking garage that produces first-floor income, takes traffic surges right off the street

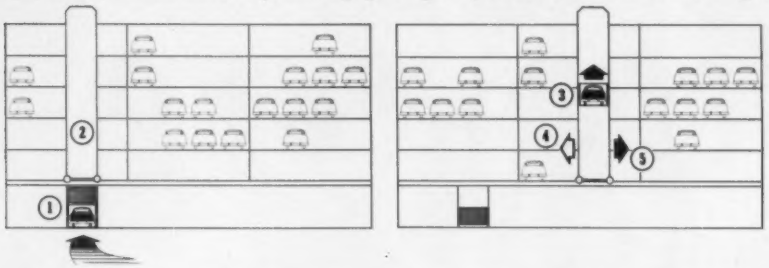
Practically the entire first floor of this Dresser-Ideco "Park-A-Loft" garage in Parkersburg, West Va., produces income. This usable first-floor area is one of the compelling reasons why you should investigate Park-A-Loft. Floor for floor, Park-A-Loft has an unmatched capacity for high-density parking, so essential for efficient use of high-cost, restricted down-town lots. No other mechanical garage has anything like Park-A-Loft's ability to handle traffic surges.

This efficient use of first-floor space comes from Park-A-Loft's unique overhead tower-elevator system. It rides on rails at the second floor level, clears the ground floor of space-wasting elevator travelways. In addition, this two-dimensional tower elevator system saves car handling time. As the elevator carrying a car moves up, the tower *simultaneously* moves horizontally, transporting the car to a previously selected parking stall. This compound movement assures fast handling of vehicles, permits high rate of turnover with minimum crew.

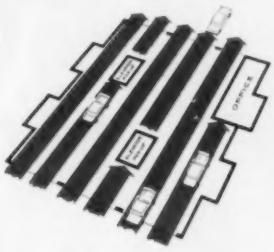
But that's not all that is new and exclusive in Park-A-Loft. Each car dolly *automatically adjusts to correct length* for the car being handled, regardless of make or model.

The features of Dresser-Ideco's Park-A-Loft mechanical garage are so new, so important, it will pay you to become familiar with them all. Let us show you our color, sound movie of actual parking operations at the Parkersburg installation. And write for the new Park-A-Loft folder. There's no obligation. Just send your request to Richard Haas, manager Garage Division.

No other mechanical parking garage operates like this . . . or gives this bonus first-floor space.



Park-A-Loft does 2 things at once (left) Car stops in front of elevator station on first floor (1), elevator tower (2) is in position overhead and elevator is on ground floor. Dolly picks up car, carries it onto elevator. (right) As elevator rises into tower (3), wheel-mounted tower **simultaneously** travels either left (4), or right (5) along face of the parking stalls. As tower travels, elevator within tower rises to selected level. At desired parking stall, elevator and tower stop; Park-A-Loft dolly carries car into stall and deposits it. Entire sequence of operations takes only seconds. De-parking operations are just the reverse.



Unmatched reservoir space. Only Park-A-Loft gives you this clear, usable first floor area. Cars can be driven completely through to adjacent parking area, or parked immediately without waiting for mechanical operations.

(left) **No hands.** Car dolly automatically adjusts to the correct length for the car being handled . . . lifts every make and model on rubber-covered pads at these 3 safe points — under both sides of front suspension frame and under differential. There's no metal-to-metal or metal-to-tire contact, no chance of operator error.

(right) **Easiest, safest way to park.** Dolly deposits cars in parking stalls. Right front wheel lock stops any movement. No space is wasted, there's no chance of damage to vehicles.

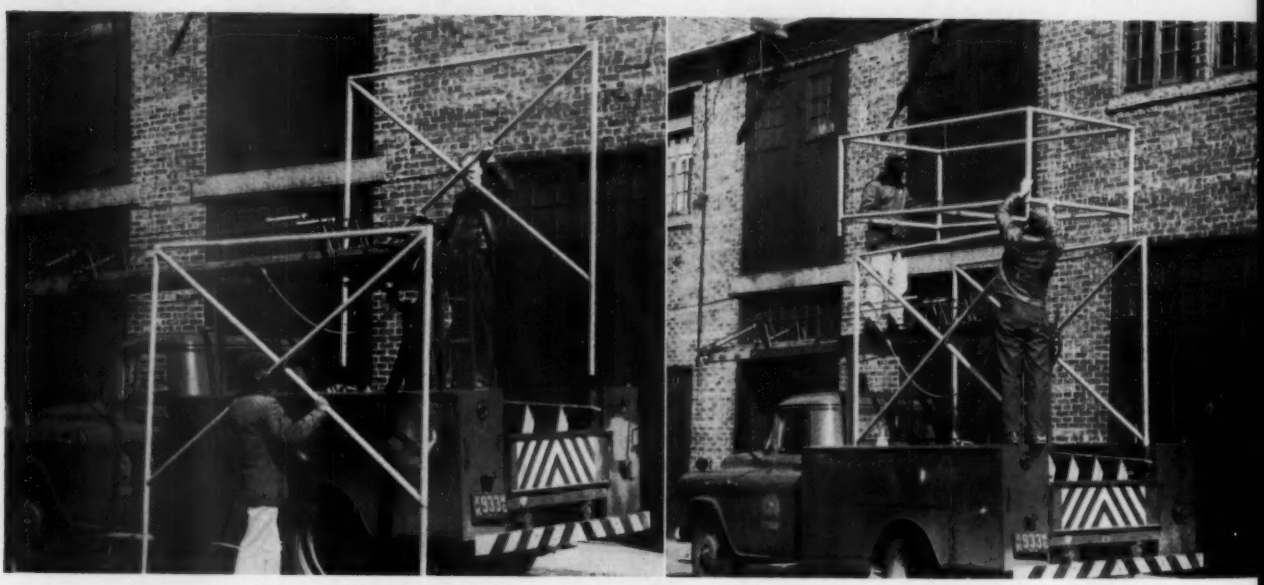
Dresser-Ideco Company
DIVISION OF DRESSER INDUSTRIES, INC.
PARK-A-LOFT DIVISION, DEPT. P-94, 875 MICHIGAN AVE., COLUMBUS 8, OHIO

DRESSER IDECO

The New Standard in ALUMINUM LIGHTING STANDARDS

by READCO

READ STANDARD, YORK, PA. • A DIVISION OF CAPITOL PRODUCTS CORPORATION



One man can mount side bracket of the platform while two are needed to mount the top frame and 4x8-foot plywood platform.

East Orange's Platform For Signal Repairs

By R. C. GRIMM
City Traffic Engineer

THE City of East Orange, N. J., with a population of 85,000, has a division for new installation, maintenance and repair of traffic signals installed at 53 intersections.

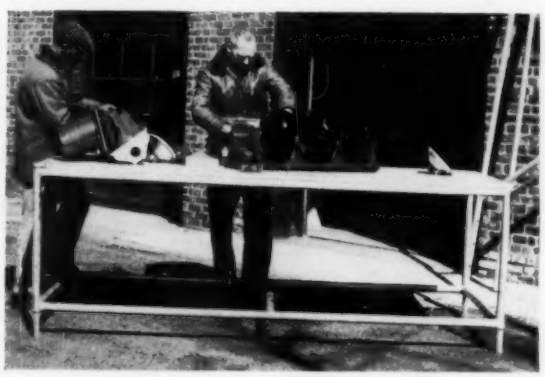
For bulb replacement in our trombone and pedestal units, we have a ladder truck. For major repairs on our overhead signals, however, it became apparent that working from the ladder truck was inconvenient and hazardous. A platform truck was out of the question (and out of the budget), but with the assistance of Clifford Weimer, traffic signal maintenance foreman, William P. Kingston, junior engineer, and Ernie's Welding Service, in the adjacent town of West Orange, we designed and built an aluminum tubing structure which, when it is placed on the ladder truck, satisfies our needs.

Cost

The cost of this structure, including fabrication of material, was approximately $500.

The usefulness of this equipment is quite clearly indicated by the pictures.

The 4x8-foot platform has a guard rail and is 13½ feet high.



The top structure makes a good work table in the shop.

Boston's Prosperous Circumferential Highway

WHY in the world did they build such a beautiful highway through the wilderness? The answer vindicates the faith of the Massachusetts Department of Public Works. The famed highway 128 has brought great changes to 20 or more communities along its route. By the end of this year, nearly 30,000 people will be employed on Route 128 in industrial plants that have a total investment of $140,000,000.

The economic impact of the circumferential highway has been charted during a two-year study by the Massachusetts Institute of Technology.

Tax benefits to towns along the route are substantial. For example, the New England Industrial Center in Needham occupies only 1.2% of the town area, but contributes 9.6% of total property taxes.

Approximately 18% of all employees in Route 128 industries have changed residence since starting to work at highway sites. For example, at plants which have been in operation for six years, 25% of the employees have changed residence.

Land value at industrial sites along the highway has increased since 1951, from an average of $1,000 per acre to $8,000 per acre.

Every day 40,000 to 50,000 cars use Route 128. During peak traffic, about one car in three is carrying employees to or from their jobs. In the City of Waltham alone, $22,000,000 already has been invested in industrial enterprises along the highway.

Major factors that originally attracted industry to the still growing Route 128 include: need of land for expansion; accessibility for commercial purposes; attractive site; labor market considerations; accessibility for employees; advertising value of site, and adequate parking facilities.

Leapfrog Parking In Columbia, S. C.

The Assembly Street median with two metered parking spaces alternating with two free spaces provides for both long and short term parking needs.

IN FRINGE AREAS bordering the downtown area of Columbia, S. C. a double demand exists: for short-term parking space with frequent turnover for clients and customers of scattered business and commercial establishments, and for all-day or long-term parking by employees of nearby office buildings and people planning to spend several hours downtown and willing to walk several blocks.

To provide more efficient usage of curb parking spaces in these transitional areas for both long and short periods of parking, Columbia traffic officials decided to convert every other metered parking space in these blocks to free parking spaces. Dubbed "leapfrog" parking by the local press, the idea originated with Columbia's Director of Public Works, Harry O'Bannon Bellinger. The Traffic Committee consists of traffic engineers, the planning director, chief of police, traffic captain, city electrician, superintendent of streets, and the director of public works.

The parking meters provide parking time from twelve minutes to two hours. This is long enough to transact business or fill a dental appointment, but not long enough for students at the University, employees in Government offices and other long-term parkers.

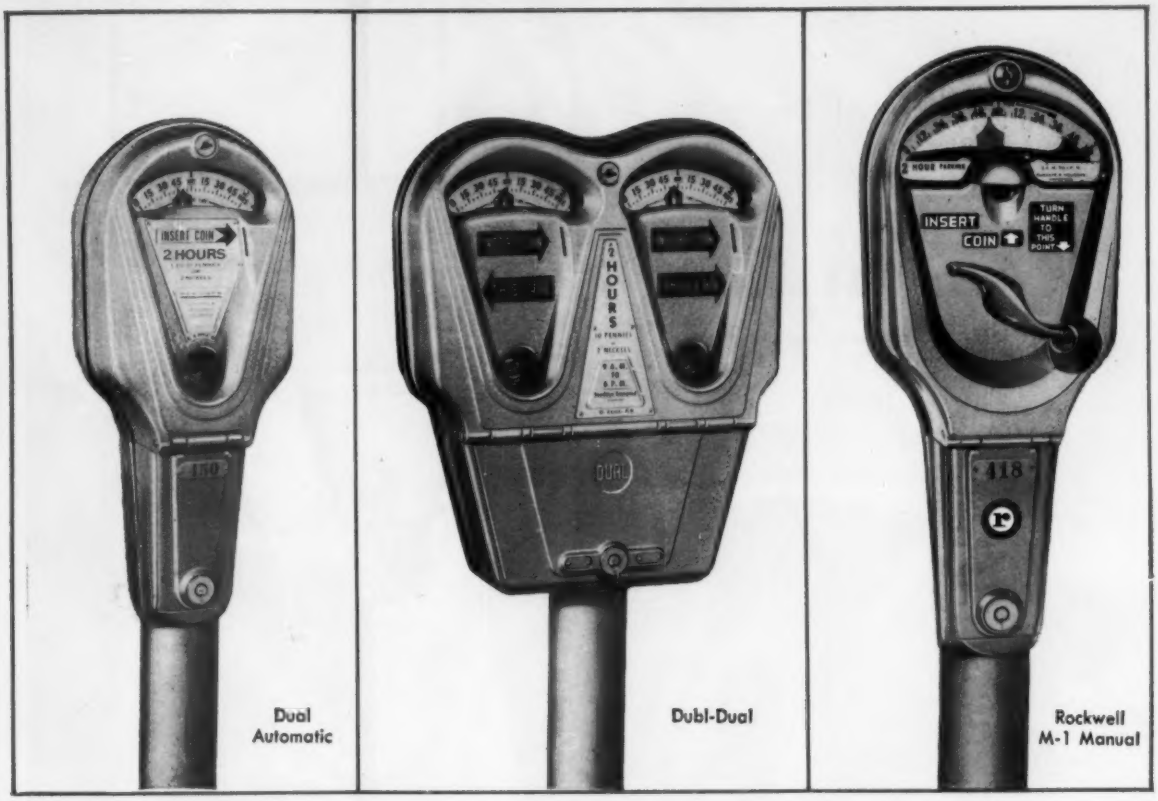
After the plan had been in operation two months, interviews revealed unanimous approval by merchants and businessmen in the area, students, governmental employees and downtown shoppers.

"Double leapfrogging," providing two free spaces alternating with two metered spaces, was instituted at parallel spaces along the median strip of the 1100 block of Assembly Street, west of the State Capitol Building, providing greater maneuverability in parking. This "double leapfrog" plan, while excellent for median strip parking, is not suitable for locations where there are bordering business establishments or intersecting driveways, the Traffic Committee feels.

Observations indicate that turnover in the metered spaces is found to be about 70% of comparable metered spaces in the busier downtown district, while all-day or long-term usage of the "free" spaces is retained.

Enforcement of parking-meter limits is also somewhat easier in the "leapfrog" areas since police have to check only half as many meters. Meters installed on this alternate basis have all been two-hour meters which provide 12 minutes for each penny or an hour for each nickel. Meter "feeding" beyond prescribed maximum parking limits is illegal.

On Street or Off Street . . .
Single or Double Meters . . . Automatic or Manual



WHATEVER YOU WANT

Rockwell Has the Meter For You

With the addition of the Rockwell M-1 Manual meter, the Rockwell-built Dual parking meter line gives even more flexibility for meeting a wide variety of metered parking needs. You can now select from single and Dubl-Dual automatic meters and the new Rockwell M-1 Manual that will take five coin combinations through a single slot. There's no need for compromise . . . you can get the meter *you* want.

If you are planning parking meter installations or replacement of existing facilities, why not have a Rockwell man call? He will show you special planning programs based on 25 years of parking meter experience and know-how. And he will show you why Rockwell-built Dual parking meters will produce more revenue through longer life and lower cost. Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

DUAL PARKING METERS
another fine product by
ROCKWELL

SEND COUPON FOR FREE DETAILS

Rockwell Manufacturing Company
Pittsburgh 8, Pa.

_____ Please send details on the Dual Parking Meter line.
_____ Please have a Rockwell field engineer call.

Name: _____ Title: _____

Address _____

City: _____ Zone: _____ State: _____

Perfect Combination for All

Outdoor Lighting...

Line Material Post Top

with

HOLOPHANE REFRACTOR

For Private Roads, Parks, Paths, Estates

Schools, Pools, Parking Lots, Recreation Areas

Plant Grounds, Airports, Railroad Stations, Bus Depots

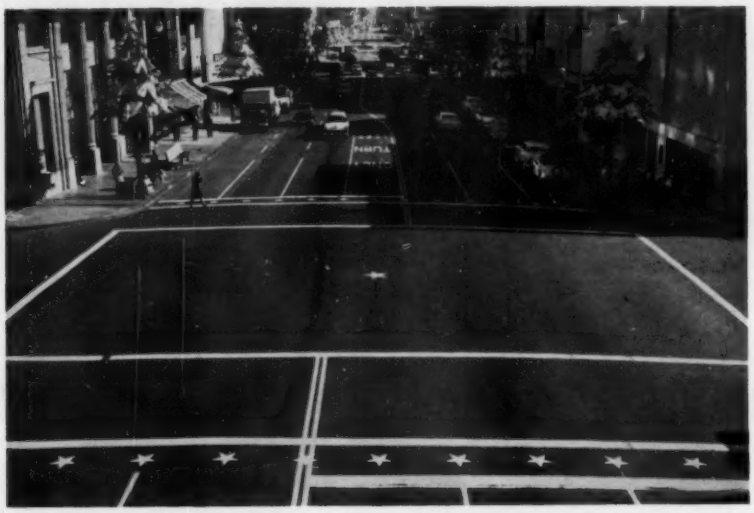
EXCELLENT LIGHTING plus elegant styling make this new Luminaire the ideal unit for all outdoor areas... The open-bottom **HOLOPHANE REFRACTOR** provides most effective illumination. With prismatic control, it directs more light where it is most needed, distributes it uniformly... The modern Post Top Luminaire is equally decorative whether on new standards or on old style ornamental posts... Available in five IES distributions. Uses incandescent lamps up to 10,000 lumens; also 100, 175 and 250-watt mercury vapor lamps. Write for engineering data.

HOLOPHANE COMPANY, INC.
Lighting Authorities Since 1898
STREET LIGHTING DEPT., NEWARK, OHIO
THE HOLOPHANE CO., LTD., 416 KIPLING AVE., SO., TORONTO 18, ONT.

Because

It Lasts Longer

By S. S. TAYLOR
General Manager
Department of Traffic
Los Angeles, Calif.



Hollywood Boulevard at Christmas with the distinctive mark of stars showing the impact of movie, radio and television. All markings are white Permaline material.

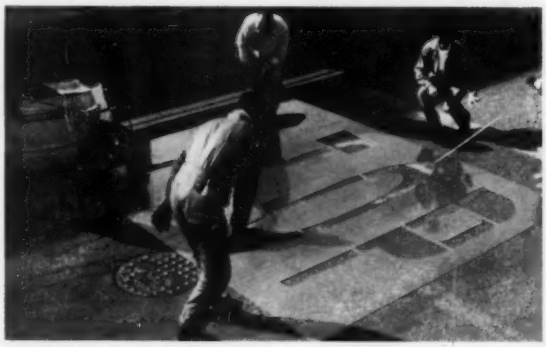
THROUGHOUT Los Angeles we had difficulty maintaining painted crosswalks. We were, however, not using premium paint, as competitive bidding had forced the price down to less than $1.50 per gallon. Our experience does show that the thermoplastic material lasts from eight to 12 times as long as the paint we have been using.

Permaline

To date, we have applied in the city of Los Angeles approximately 250 tons of Permaline material made by Veon Chemical Corp., 22-09 Bridge Plaza North, Long Island City 1, N. Y. We use a 12-inch wide crosswalk bar preceded by a 12-inch wide stop bar, so this quantity has installed approximately 4,000 crosswalks.

We are also installing a 10,000-lb. test of another type of thermoplastic material which uses a greater quantity of glass beads as a filler material. While this material gives a somewhat greater nighttime reflectivity there is a darkening tendency in the day time.

We are hopeful that we will be able to plasticize approximately 17,000 crosswalks by June 30, 1960 and that we will then be able to maintain these crosswalks effectively with the thermoplastic material, which is something we cannot hope to do with paint except with greatly increased quantity of paint and numbers of paint crews.



A traffic crew preparing stencils to place a plasticized word marking at a "Stop" intersection.

Parking Meter Rates Going Up

IN accordance with Mayor George Christopher's request, the San Francisco Parking Authority surveyed current practices of the growing number of cities that have increased parking meter rates from 5c an hour to 10c an hour.

Of 48 large cities surveyed, 38 have rates of 5c a half hour, 10c an hour or more.

Five of the cities have rates of 10c a half-hour or 20c an hour, as follows: Cincinnati, Ohio; Houston, Texas; Minneapolis, Minn.; Oklahoma City, Okla.; Toledo, Ohio.

Four cities have a city-wide rate of 10c an hour, or more: Atlanta, Ga.; Houston, Texas; New York, N. Y.; Tulsa, Okla.

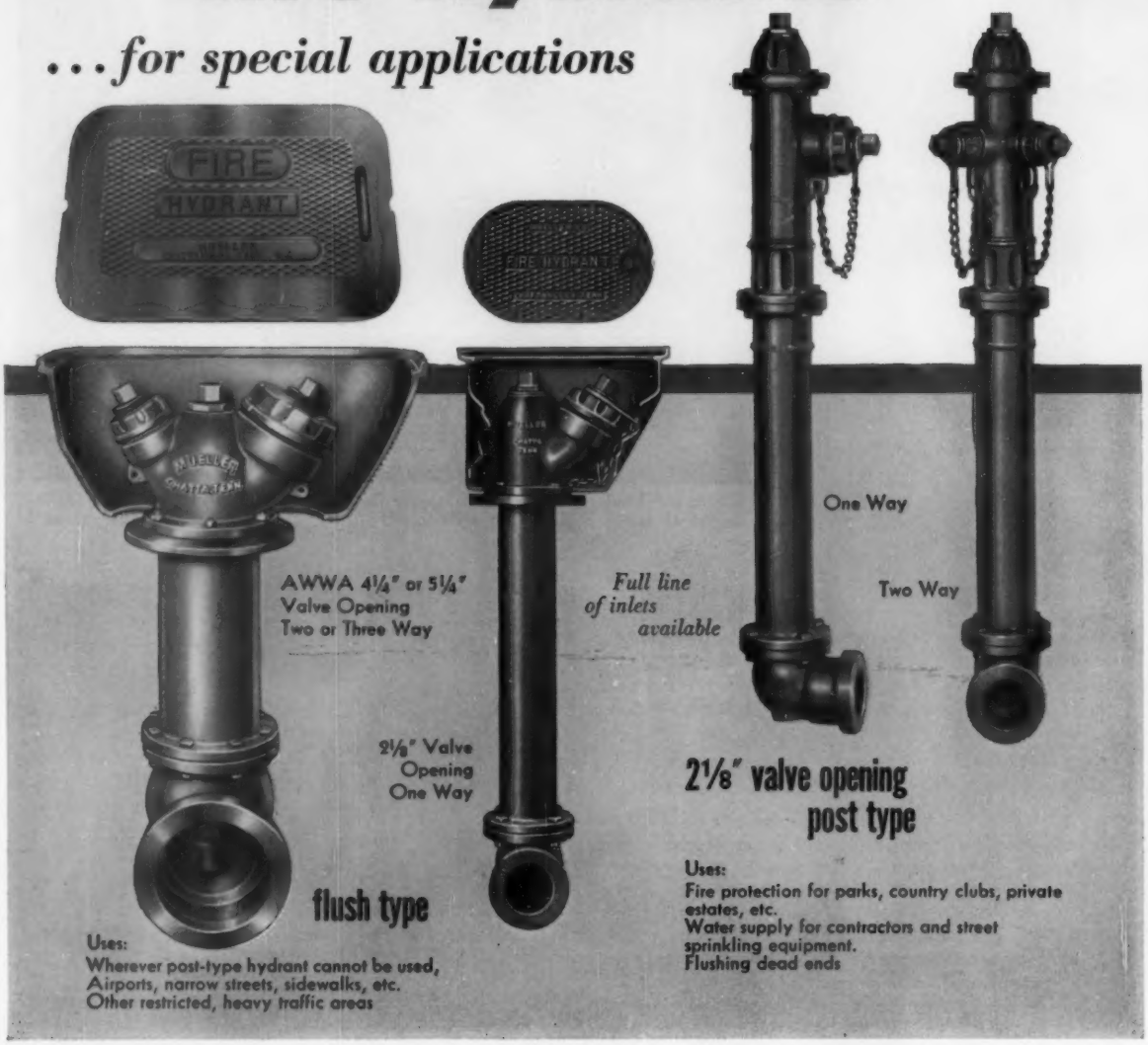
Six cities of those covered in this survey devote part or all of net parking meter income to off-street parking: Chicago, Ill.; Des Moines, Iowa; Detroit,

(Continued on page 137)

MUELLER®

fire hydrants

...*for special applications*



These fire hydrants for special applications are just a part of the full line of fire hydrants produced for municipal, industrial and private fire protection systems by Mueller Co.

The design and quality of these special hydrants is exactly the same as Mueller AWWA Standard Fire Hydrants for municipal use. Compression type main valves, automatic drain valve mechanisms and "O" ring stem seals are just a few of the features. The only difference in the 2⅛" valve opening hydrants is size.

The use of these quality features in *all* Mueller fire hydrants is typical of the great attention to detail in research, design and engineering that becomes a part of every Mueller product made for the water industry.

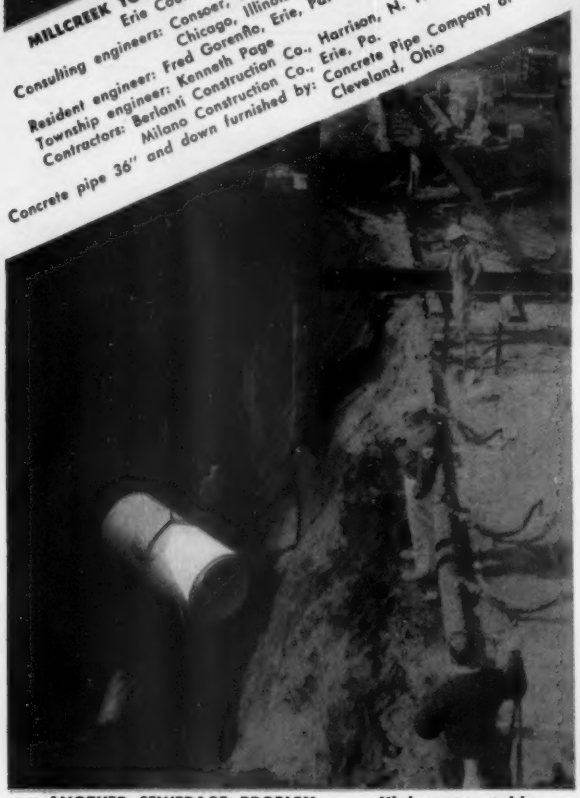
Write for complete information.

MUELLER CO. **DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

MILLCREEK TOWNSHIP PROJECT
Erie County, Pa.

Consulting engineers: Consoer, Townsend & Associates, Chicago, Illinois
Resident engineer: Fred Garenflo, Erie, Pa.
Township engineer: Kenneth Page
Contractors: Berlanti Construction Co., Harrison, N. Y.
Milano Construction Co., Erie, Pa.
Concrete pipe 36" and down furnished by: Concrete Pipe Company of Ohio, Cleveland, Ohio



ANOTHER SEWERAGE PROBLEM . . . High water table in project's 15 square mile area promised to impose severe strain on pipe joint seals. Gaskets would have to meet rigid specifications for effectiveness, strength, long life.

SOLVED WITH PRESS-SEAL RUBBER GASKETS! Press-Seal Rubber Gaskets met all specifications for installation in Millcreek's unusually wet soil, provided effective—and permanent—protection against infiltration.

MILLCREEK TOWNSHIP PROJECT

Shuts out ground water, seals in sewage with Press-Seal Rubber Gaskets

An unusually high water table—and consequently, unusually wet soil—seemed a formidable sewerage problem to Millcreek Township, Erie County, Pa.

It turned out not to be! Properly designed concrete pipe equipped with Press-Seal Rubber Gaskets effectively sealed joints against both outside and inside pressures, satisfied specifications on 45 miles of sanitary sewers. And the gaskets —made of a special Goodyear high-quality rubber compound —will last as long as the concrete pipe they seal.

Today, more and more engineers on big pipe-line projects are specifying Press-Seal Rubber Gaskets . . . for faster installation, lower cost and permanent protection against leakage. Press-Seal Gaskets offer you the right material for every sewerage purpose: Buna-N for oil content; Neoprene for acid content; Natural Rubber for common sewage. Write for complete information and specifications.

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TRADE MARK

PRESS-SEAL GASKET CORP.

OFFICE AND PLANT: P. O. BOX 482, R.R. 6, COVINGTON RD.

FORT WAYNE, INDIANA • Phone Kenmore 5213

PRESS-SEAL GASKET OF CALIFORNIA—P.O. BOX 3053, SANTA BARBARA, CALIFORNIA
PRESS-SEAL GASKET CORPORATION OF CANADA—KITCHNER, ONTARIO

For qualities beyond your specifications —

CONDULETS*...

made only by Crouse-Hinds

You'll find Condulet electrical equipment in two out of three plants across the country. It's there because electrical engineers have discovered that it provides *more* than standard performance.

And no wonder. Only Condulet rigid conduit fittings have all these features:

✓The wedge-nut cover fastener.

✓Longer hubs for a better wrench grip.

✓Taper tapping to match ASA standard tapered conduit threading for a rigid joint that will not loosen.

✓A triple long-lasting finish that exceeds Federal government and U.L. specifications.

✓A smooth, integral bushing to protect cable insulation.

✓Feraloy, a special alloy that is strong, resists corrosion, and gives full, sharp threads.

For installations where aluminum, plastic or plastic-coated conduit is used, we can supply either copper-free aluminum or plastic-coated Condulet fittings as required.

• *Next time you order, specify Condulet equipment. From the simplest fitting to complex motor controls, the name "Condulet" and the Crouse-Hinds trade-mark are your assurance of receiving the finest.*

CROUSE HINDS

MAIN OFFICE AND FACTORY: SYRACUSE, NEW YORK

Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.

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* CONDULET is a coined word registered in the U.S. Patent Office. It designates a brand of products made only by the Crouse-Hinds Company.

These products are sold exclusively through electrical distributors. For application engineering help, contact one of the following offices: Baton Rouge Birmingham Boston Buffalo Chicago Cincinnati Cleveland Corpus Christi Dallas Denver Detroit Houston Indianapolis Kansas City Los Angeles Milwaukee New Orleans New York Omaha Philadelphia Pittsburgh Portland, Ore. Salt Lake City St. Louis St. Paul San Francisco Seattle Tulsa Washington **Resident Representatives:** Albany Atlanta Baltimore Charlotte Chattanooga Jacksonville Reading, Pa. Richmond, Va. Shreveport

(Continued from page 133)

Mich.; Milwaukee, Wis.; Topeka, Kans.; White Plains, N. Y.

Sixteen cities reported an increase in parking meter revenue, following rate increases averaging 70%. No cities reported decreases.

Twenty cities reported favorable public reaction to parking meter rate increases. No city reported dissatisfaction with rate increases.

Additional Fact and Comments

Atlanta, Ga.—Virtually no complaint from any of our citizens regarding these rates.

Baltimore, Md.—It is our belief that the national trend is pretty much to higher rates.

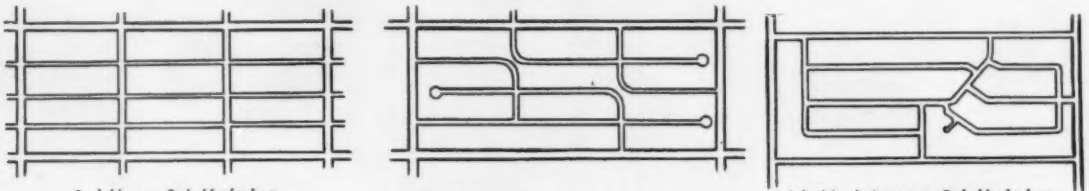
Dallas, Texas—Public seems to understand that higher rate tends to discourage the detrimental practice of "feeding the meter." This has been responsible for its ready acceptance of the higher rate.

New York City—We are just getting under way with an off-street parking program, and it is the intention of the administration to use parking meter revenues to the extent necessary to keep this program self-liquidating. By doing this, the off-street parking program will not be an encumbrance on the capital debt limit.

Beverly Hills, Calif.—There has been no noticeable increase in operating expense as a result of the changeover. The entire increase in revenue is approximately net income.

VINING T. FISHER
General Manager
San Francisco Parking Authority
San Francisco, Calif.

T Intersections Safer



Gridiron Subdivision

Redesigned Gridiron Subdivision with Limited Access

Limited Access Subdivision No 4-Way Intersections

TRAFFIC safety within the residential subdivision is a growing problem in Albuquerque, N. M. as well as many other cities because of the rigid gridiron pattern of streets containing, almost exclusively, four-way intersections. One of the objectives of our Planning Department is the elimination of four-way intersections in existing, platted areas wherever possible for increased traffic safety. The incentive for this was a study by Harold Marks, Traffic Survey Engineer in the Los Angeles County Road Department, of 86 residential subdivision tracts totaling 4,320 acres with a population of 53,000 people.

Two types of subdivisions, gridiron and limited access, were used for comparison purposes. Area and population characteristics of both were approximately the same. Within the subdivisions statistics were gathered on various types of intersections, particularly four-way and three-way (T) intersections.

	3-Way Intersections	4-Way Intersections
Controlled Access Subdivisions	.006	.085
Gridiron (Noncontrolled Access) Subdivisions	.006	.246

Accident rates for these two types of intersections showed that the "T" intersection is equally safe in both controlled and noncontrolled access subdivision, accident rate in both cases being 6 accidents per 1,000 intersections. The four-way intersections, on the other hand, produced 246 accidents per thousand in controlled access subdivisions. Mr. Marks concluded from these statistics regarding intersections that four-way intersections, by their nature, produce many more accidents than "T" intersections. Other conclusions made by Mr. Marks based on this study:

1. Limited access design, preferably limited to quarter-mile access points, appear to provide maximum safety.

2. Double front lots or cul-de-sac street design is generally preferred to a side service road.

3. Continuous through streets should be avoided.

4. Three-way or "T" type intersections should be used more frequently instead of four-way intersections.

5. Design features such as intersections with more than four legs, acute angle and "Y" intersections, and jog intersections should be avoided.

BOB MCDONALD
Associate Planner
Albuquerque, N. M.

More Parking Meters For New York City

THE LATEST expansion of New York City's on-street parking program consists of 2,100 new parking meters in 14 business districts. It brings the city-wide total of metered parking spaces to 47,500, serving 71,570,0000 vehicles per year in 185 New York City business and shopping areas. "Parking meters," according to Traffic Commissioner T. T. Wiley, "not only reduce traffic congestion caused by double parking and cruising but make it possible for the public to park within convenient distances of stores and business establishments."

PARK-O-METER Wins test in Rockford, Ill.

- PREFERRED BY THE PUBLIC
- PROVED 3 TO 13 TIMES BETTER MECHANICALLY

PARKING METER TEST AREA

1 HOUR PARKING

1 PENNY 6 MINUTES

1 NICKEL 30 MINUTES

1 DIME 60 MINUTES

Ten new parking meters from three leading companies were installed alternately on a high turnover street. Mechanical performance was tested for 30 days . . . and a postcard poll was taken on public preference. What happened?

PARK-O-METER WON BY A LANDSLIDE!

AUTOMATIC MAKE "A"
Mechanical Test . . . 27 jams.
Public Preference . . . 10.4%*
MANUAL MAKE "B"
Mechanical Test . . . 6 jams.
Public Preference . . . 9.1%*
PARK-O-METER AUTOMATIC
Mechanical Test . . . 2 jams.
Public Preference . . . 72.2%*

View on North Main Street in Rockford's busy shopping center. Note meters placed alternately in Test Area.

★ Meter-maids put 1,000 postcards on parked vehicles. 241 of these cards were returned with the results indicated. 8.3% of those answering expressed no preference.

A REPORT TO THE MAYOR AND COUNCIL STATED:

"The Meter-maids patrolling this area observed that the greatest number of complaints were made concerning the coin slot operation of the Automatic Meter "A", which accounts for the high number of jammed meters of this type. Other complaints were received concerning the two coin-slot operation of the Manual Meter "B", when users inserted a dime in the penny-nickel slot and received only 6 minutes of parking, the same as one penny would produce. The results of the *mechanical field test and public user test* indicate that the low bidder, Park-O-Meter, has produced the parking meter most desirable for use on the streets of Rockford."

YOUR CITY CAN PROFIT FROM THIS TEST!

Magee-Hale
PARK-O-METER COMPANY
3909 Willow Springs Road
Oklahoma City 12, Oklahoma

The City Tells Its Story

Edited by PAN DODD EIMON

Executive Director, Government Public Relations Association

Put out the welcome mat for travel season . . .

City Hall Can Capitalize on Tourist Traffic To Attract Visitors, Boost Summer Business

WHETHER your city is a metropolitan magnet for visitors, a resort center, an historical shrine, or just another community on a main highway, it can't ignore the thousands of tourists who travel and spend money each vacation season.

Many communities—some regardless of their size or natural attractiveness for tourists—have capitalized on U. S. travel habits to create new business for local merchants and service establishments. Other communities have acquired enviable reputations for friendliness and, not occasionally, have won unexpected prizes. For example: an automobile-parts manufacturer located his plant in a small town which came to his attention through its "Welcome Truckers" program; an executive of a major electrical firm influenced his company's decision to build in a city through which he had passed on vacation and where he was impressed with the "general appearance of the town and the alertness of its people."

The benefits from tourism are well-known to city officials. Tourists spend money in the town; they advertise the town; they stimulate business in the summer when it is at low ebb.

The methods of tourist attraction are many and varied. Where there are natural lures — national parks, historical monuments, sporting facilities—tourists congregate. A nearby city can promote such attractions and encourage visitors to use the city as a living and shopping center.

Where there are no natural attractions, some cities create them. Tiny ***Cherokee, N. C.,*** brings thousands to a magnificent outdoor theater to see its Indian drama, "Unto These Hills." ***Holland, Mich.,*** lures tourists with its well-staged Tulip Festival. People can be encouraged to visit the birthplace of a famous person, to watch cigarettes or aluminum or automobiles being made, to attend special courses at a college or university.

Even without visitor attractions, careful attention to servicing motorists passing through has brought rewards for cities large and small. ***Lebanon, Tenn.,*** observed a "Hospitality Week" during which it emphasized the city's car, food, and motel services. The city provided free parking, information, police help, cold drinks. The week gave business a shot in the arm, resulted in excellent publicity, helped create a community feeling which had a chain reaction in other city efforts.

Who is responsible for tourist promotion? In some cities, the responsi-

What's Your City's TP* Rating?

TOURIST business is big business and the city has a vital part in it. Here's a ten-point check-list which any city official may score for his city and himself . . . and which may stimulate thinking and action to capitalize this year, or next, on the thousands of visitors who annually come to, or pass through your city.

1. Are the city's historical sites—buildings, monuments, and grounds—developed, landscaped, and marked?
2. Are public places—buildings, parks, streets—well-kept and adequately identified?
3. Is there a centrally-located tourist-information point?
4. Is printed information, about city history, facilities, industrial and business development, recreational areas, available for visitors?
5. Is there a walking tour or a bus tour through the city, planned for visitors with guide service and/or souvenir maps?
6. Does the city provide courtesy parking spaces for visitors?
7. Has the city stimulated business and civic groups to give special attention to convention visitors and tourists? (Such as providing printed information, shopping guides, mementoes.)
8. Do local craft factories and industries open their doors to visitors?
9. Is there an office or official of the city government, responsible for initiating and carrying on visitor services or for coordinating city activity with that of other tourist promotion groups?
10. Do you, as a city official, believe that you and the city have done as much as possible, or desirable, to capitalize on the tourist potential of your city?

* TP—Tourist Promotion.

Revere Urban-Lites provide economical lighting for secondary streets. Splice box in neck makes wiring easy, U-bolt and leveling screws permit accurate, permanent positioning.

REVERE PLANNED STREET LIGHTING

Revere Urban-Lite makes efficient use of 100, 175, or 250-watt mercury lamps for uniform light where lower intensity light is adequate.

The Revere Urban-Lite was especially designed to solve a specific problem — to provide lightly-traveled residential streets with uniform lighting at lowest possible cost. It is smart in appearance, and uses horizontal burning mercury or incandescent lamps for economy and efficiency where high intensity lighting is not required. It is also available wired for plug-in type individual photo-electric control.

Other street lighting problems call for different types of equipment. For every problem, Revere offers high quality lighting fixtures that are specifically designed to provide the most efficient, economical solution. Write for a Revere Street Lighting Catalog.

Other luminaires from Revere's complete line

For heavily-traveled streets —Revere Endoval luminaire uses 11,000 or 21,000 lumen mercury lamps for high-intensity illumination. Reversible slip-fitter for mounting horizontally or with 10° tilt.

For moderately-traveled streets —Revere Star-Lux luminaire uses up to 10,000 lumen incandescent lamps, or 250 to 400-watt mercury lamps to meet varied needs.

Revere OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (In suburban Niles)
Long Distance Phone: Niles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles

bility is that of the city government with what help it can elicit from local business and civic groups. In others, there may be a tourist bureau, Chamber of Commerce, merchants' association, or automobile club with which the city cooperates.

At random, here is action taken by cities to attract favorable tourist attention.

Make a Museum. The oldest house in the city may be in the way of a slum clearance project or a new highway. Or, it may not be the oldest house, but one representative of life as it was lived in your city 50 or 100 years ago. Such a place can become a cherished museum. One city is rescuing an 18th Century tavern from wreckers and a citizen association will furnish and operate it as a museum. Another has preserved a fine period house as an historical shrine. A Canadian community created a museum in an old barn, filled it with exhibits to show how Canada's pioneers lived. Every family in the area has contributed attic treasures to it. A small town found the graves of Davy Crockett's parents covered by weeds, has made the site a park of local and tourist interest.

What is that? Too often this is the question in the minds of visitors because city properties are not identified. The city hall, municipal court, police department, water filtration plant, public parks and monuments should be adequately marked. Even where the identity of a building is painted on or engraved in it, additional signs, lighted at night and visible for passing motorists, are suggested. Effective, too, is the night spotlighting of city buildings.

George Washington Slept Here. Places of historical interest in the city should be attractively marked. One city has mounted handsome signs—black and gold letters on a white ground—on every structure of interest to citizens and tourists. The signs give the name, dates, use, and personages connected with the building or site. Attention-flagging red-and-white bunting is draped by each sign.

How About a Walk? People stop, look, visit, and buy when they are on foot . . . and this is one argument for planning and mapping a "Promenade Through Town." The walk should take not more than an hour, route visitors past places of interest, including commercial establishments. The large city arranges for several walking tours, from which visitors may choose or which they may take on different days. The map must be crystal clear, provide interesting data about the landmarks along the route. Such maps are frequently financed by a bank, department store, service station.

Where's the Zoo? Visitors will enjoy the zoo, a swimming pool, a picnic park, a library. Can they locate these easily? Directional signs, at major entries to the city and at intersections, make it easy for strangers to find their way (helpful to citizens, too!). Excellent signs in one metropolis incorporate a brightly-painted picture of the place to be visited or something symbolic of it, its name, a directional arrow, and the mileage. For example, the route to the zoo is marked by a painted elephant's head, the word "Zoo," an arrow pointing the way, and the words "one mile." (In this connection, it goes without saying, legible street-marking meets the needs of strangers as well as hometowners.)

Fairs and Festivals. These require expert planning, enthusiastic local support, hard work, and money. Ingredients include: a focal point (local product, crop, industry, event); public entertainments (pag-

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Permanent Color • Harmless to Cars
Lowest Cost • Easiest to Store

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*Patented

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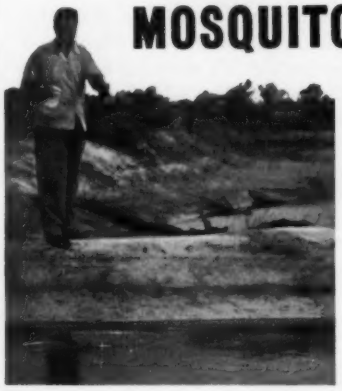

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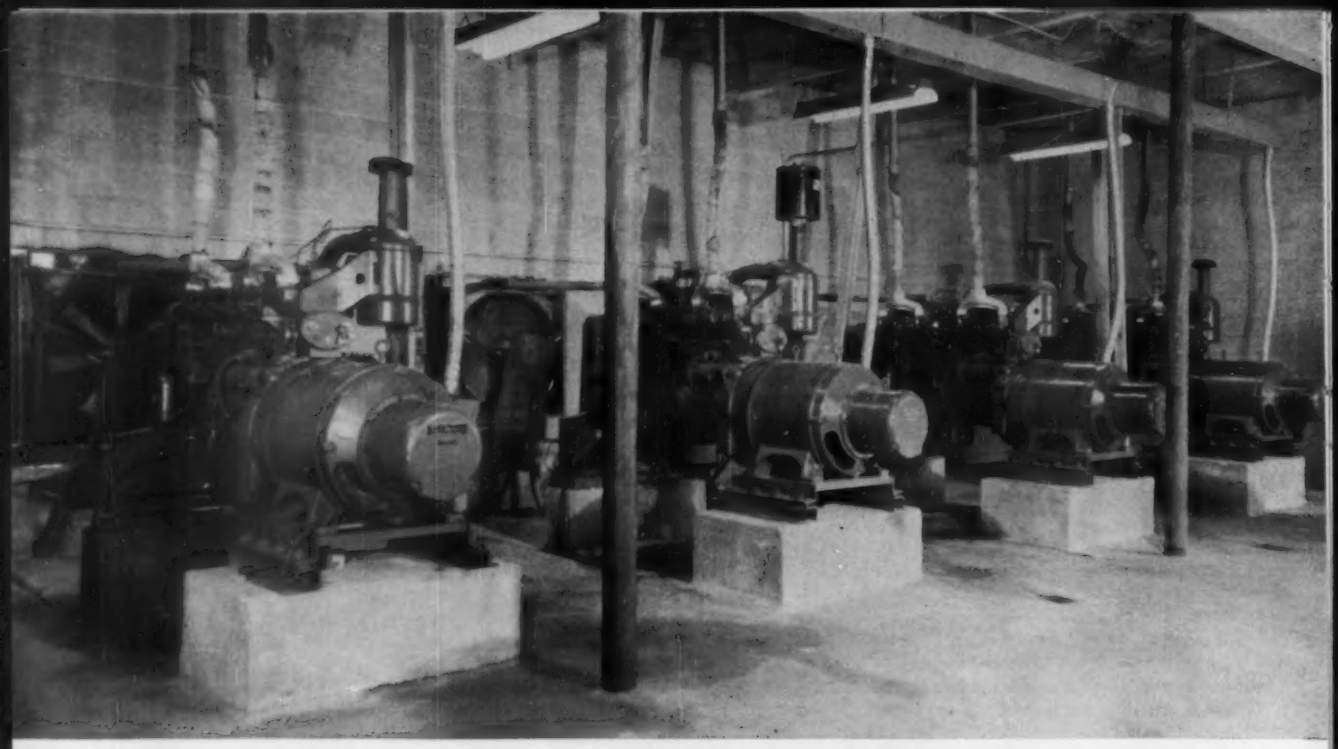

Large wall-mounted radiators and reverse flow fans powered by 5 hp motors cool the four International UD-1091 diesels.

No blackouts for 11 years in town lighted by four International powered generators

Power failures have been unknown for 11 years at Beatty, Nev. (pop. 650), where International diesel engines drive four Palmer generators in the privately owned power plant.

Revert Bros., Inc., originally used four UD-18 diesels but replaced them after 10 years with larger UD-1091 diesels to supply increasing electric power needs. Peak loads come at night and are now easily handled by operating only three of the four Palmer 100 KW generator sets.

"For 10 years our International UD-18's faithfully supplied Beatty with electricity," states Norman Revert, partner. "During that time they received ordinary maintenance yet we never had a failure or breakdown. Maintenance cost was remarkably low. Now the bigger UD-1091 diesels are beginning a long tour of dependable service. After a year's operation, we can only report complete satisfaction."

Located near Death Valley's eastern entrance, Beatty caters to tourists with four motels, four restaurants and several bars.

Your town can be assured this same dependable, low cost power when you approve the purchase of International engines for generators, pumps, or in construction machinery. Your power choice ranges from 16.5 to 385 max. hp in 24 diesel and carbureted engines including four brand new direct-start diesels.

International® Construction Equipment

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A COMPLETE POWER PACKAGE: Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

eants, parades); displays (local arts, crafts, products); sporting events (golf tourneys, horse shows, track meets); printed materials (advance publicity and festival programs); and, of course, a coordinating committee to run things. Sample: the ***Humboldt, Tenn.*** annual Strawberry Festival brings thousands to town for a week of events. Even more important, the festival spotlights Humboldt as *the* market for farm products.

Park Here, Free! Even if smaller cars take over in the 1960's, a place to park will still influence visiting motorists. One city puts paper bags on several blocks of parking meters at its center. These say, "Welcome Tourists. Park Free!" A police officer patrols the area, welcomes visitors, provides information, points out places of interest, hands out literature, and, incidentally, keeps the area free of ineligible parkers. Another city provides courtesy parking cards, distributed by service stations and other stopping points, which the visitor may put on the windshield, allowing him parking privileges in the city. Still another community ropes off a central parking area, flags it prominently, "For Tourists."

Information Centers. These are a boon for tourists, often helpful for local residents also. The center must be well located, prominently identified, easily reached by pedestrians, adjacent to parking facilities for motorists. It answers all kinds of questions: What are the rates at local motels? Is the textile plant open for visitors? Where can we find a good picnic spot? Is there a shop here where I can buy an antique chair? The center is also the distribution place for maps, shopping guides, hotel and restaurant information, historical data, city reports, business and industrial indices, entainment schedules and all other information about the city.

Man-of-the-Season. The most important man in town to the tourist is the police officer. He needs a "service" attitude, trim appearance, and the right answer! One U. S. city provides officers with pocket-sized information booklets to hand to motorists. Another puts bright red uniform caps on officers trained to answer tourist questions. The caps say, "Tourist Information." These officers are stationed at main intersections. A large port city, with many foreign visitors, has several officers who can answer questions of French and Spanish-speaking tourists. An arm-band worn by the officer tells visitors what languages he speaks.

Exhaust Gas Oxidizers Technically Feasible

LOS ANGELES has a fighting chance of reducing the factor of auto exhaust in its famous smog problem, but wanted first is a car deodorizer that works.

A catalytic "muffler" for oxidizing auto exhaust gases appears technically feasible even with leaded commercial gasoline, as does a device or converter containing the catalyst, George J. Nebel and Ralph W. Bishop of General Motors Research Laboratories reported recently at a meeting of the Society of Automotive Engineers on control of exhaust gas emission. Both catalyst and converter were developed by Oxy-Catalyst, Inc.

Two types of tests were run; one employed a single converter, tested on a standard production model while the second utilized dual converters, tested on a car equipped with a special carburetor, using an enriched fuel mixture. Car A was to test the catalyst and catalytic process; the Car B test was intended to supplement this and also to find out if it is feasible to reduce hydrocarbons and oxides of nitrogen simultaneously. Combined control would be advantageous because both hydrocarbons and oxides of nitrogen are reported in Los Angeles smog.

Test covered 34,000 miles of city, suburban and rural driving. The results showed that:

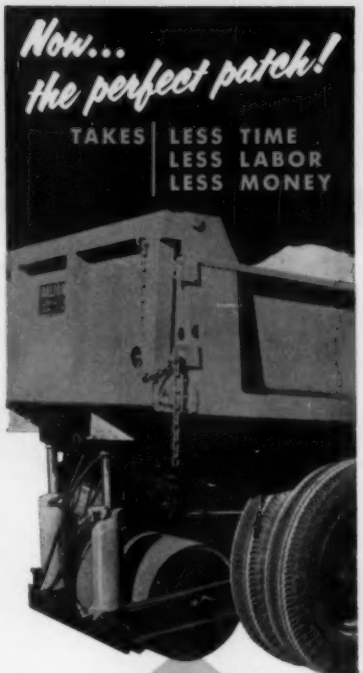
1. Catalytic oxidation reduced hydrocarbon and carbon monoxide emission substantially, but not oxides of nitrogen.

2. Combined control method removed 90% of both hydrocarbons and oxides of nitrogen from exhaust gas. However, the useful life of the catalyst is about 12,000 miles and after that replacment or rejuvenation is desirable.

3. Exhaust converters don't muffle exhaust noise satisfactorily, and the preferable way to reduce "Hollywood" noise level would be to incorporate acoustical muffling characteristics. The air aspirator on the device produces a high-pitched whine at times.

4. Drivers of Car A complained of a strong odor associated in some undetermined way with the catalytic converter.

5. Durability of the dual converter on Car B was unsatisfactory. Warpage and weld cracks appeared before 10,000 miles.



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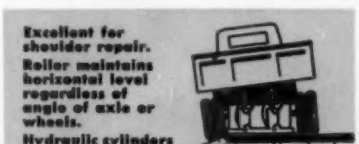
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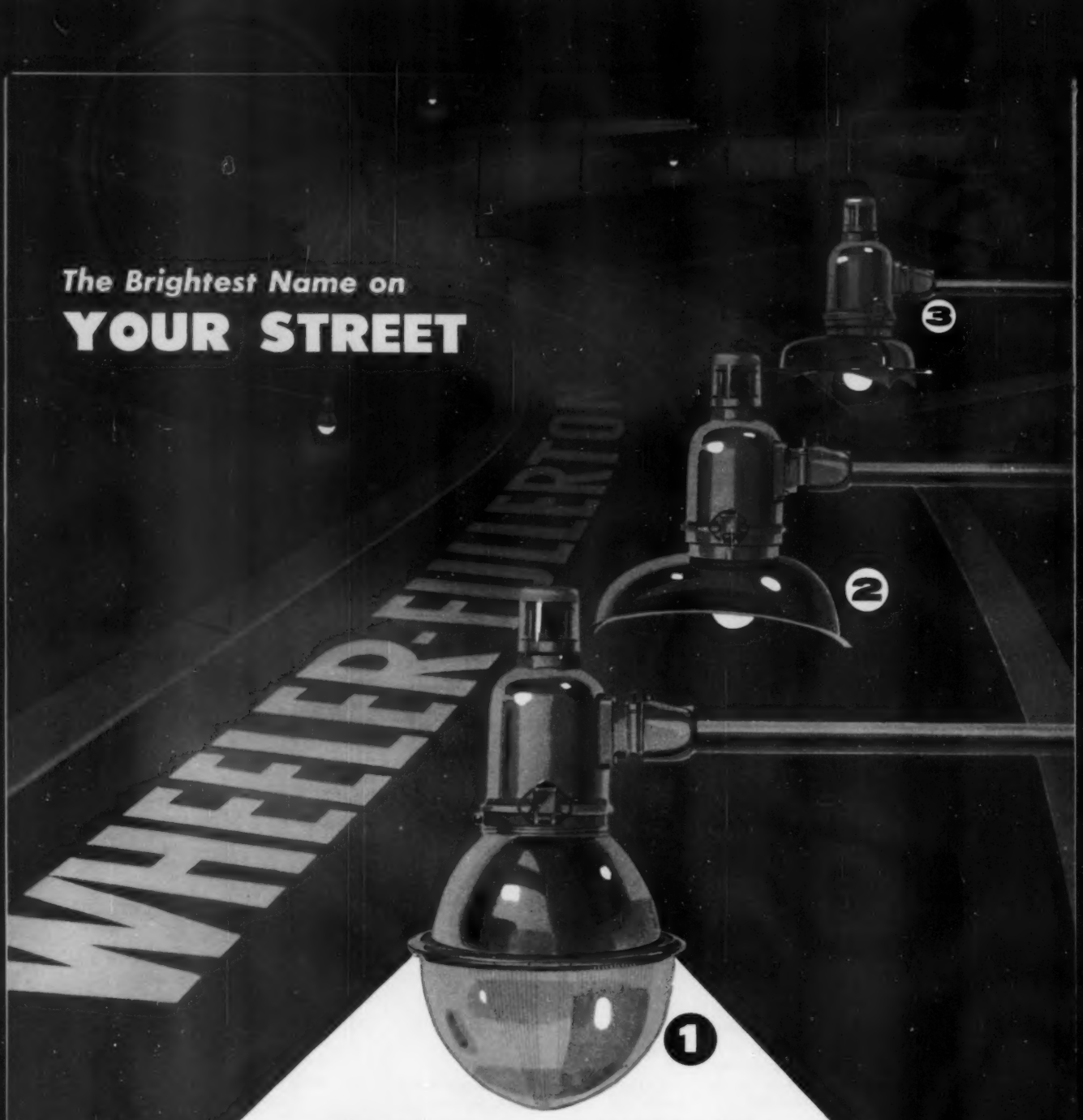

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By DAVID A. GROSSMAN, *Partner*
Blair Associates
City Planning Consultants & Development Advisors
Providence, R. I.

THE past three years has seen a phenomenal expansion of local and regional planning in the six New England states, spurred by federal financial assistance. Section 701, Title VII, of the U. S. Housing Act of 1954 (popularly known as "701") provided that financial assistance amounting to 50% of total cost would be supplied by the U. S. Urban Renewal Administration for planning programs in communities with less than 25,000 population (as of 1950) and to urban or metropolitan regional planning agencies. The program is administered by state planning and development agencies who make all arrangements with local communities, receive both the federal grants and local appropriations (and in some cases, add their own money as well) and provide planning services either with their own personnel or by contracting with professional planning consultants. Regional planning agencies can apply directly to URA for funds.

First Planning Program

Rhode Island's Shore Region Study, initiated in October 1954, was the first planning program in the nation to receive assistance under "701." Subsequently, every New England state has participated in the program. There are well over a hundred communities and seven regional groups which have received assistance from the federal government under this program. Over 13% of New England's population lives in small communities which are participating in the 701 program. Studies being carried out run the entire gamut of city and regional planning, including the gathering of basic land use and population data, preparing accurate base maps, traffic and housing studies, economic development surveys, zoning and subdivision regulations and capital improvement programs. The cost of the studies being carried out in New England communities averages $1.22 per capita, but individual programs run as high as the $7.14 per capita being spent by the Town of Mansfield, Massachusetts (1950 population: 7,184).

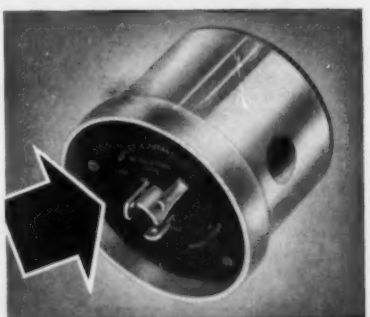
Division of Cost

Most New England states require that communities contribute half the cost of the program, with this sum then being matched by the federal government. However, both Maine and Rhode Island split the non-federal share with participating towns. All states except Rhode Island (and in a few instances, New Hampshire) employ professional consultants on a contractual basis to do the technical planning. In general, choice of consultants is made by the community's planning board from a roster of qualified professionals provided by the state agency. In at least one case, 15 different consultants were interviewed before the planning board made its choice; in most, however, two or three consultants are interviewed. Rhode Island maintains a state staff of about six professionally-trained planners to work with its communities. Its local assistance program actually predates 701, having been started as an independent state effort in 1953 on the basis of a $500 contract with a single town.

Metropolitan and regional planning programs have been slower in getting under way in New England than have local assistance programs, largely due to the fact that few regional agencies were in existence at the time that the 701 program began. Nevertheless, seven federally-aided regional programs have already been undertaken, of which three were in flood-damaged Connecticut river valleys; the other four areas are Portland, Maine,

The author wishes to express his appreciation to the following agencies for providing information: Connecticut Development Commission; Maine Department of Economic Development; Massachusetts Department of Commerce; New Hampshire State Planning and Development Commission; Rhode Island Development Council; and Vermont Development Commission.

announcing a development of major importance in TUBELESS controls...



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Rhode Island's Narragansett Bay Region, the Berkshire County area of Massachusetts, and the Southeastern Massachusetts Region (which is centered on the cities of Fall River and New Bedford). Regional programs have ranged from five to forty-one cents per capita in cost.

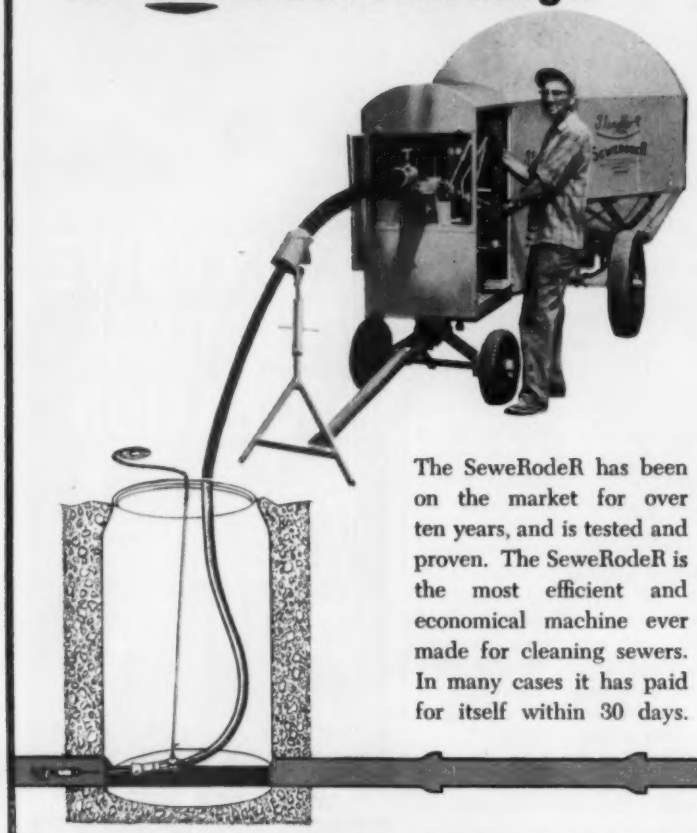
Problems Encountered By State Agencies

New England's six state planning and development agencies, replying to a questionnaire on the 701 program, indicated that the following problems have been the most commonly encountered:

1. Long delays have occurred in obtaining federal matching funds.
2. State administrative costs are higher than anticipated and cannot be itemized in the detail required by the federal government.
3. The "701" program, as currently operated, emphasizes "reports" and "master plans," rather than "planning service" or "planning process."
4. Connecticut complains that consultants have failed to meet due dates, sometimes by as much as 12 months. However, since payments in Connecticut are based on work accomplishment, this has not involved money being expended for work not done.
5. Massachusetts suggests that the population limitation for local assistance should be raised from 25,000 to 50,000 and that regional and metropolitan planning agencies should get federal grants equal to two-thirds of program cost instead of the 50% currently authorized.

Despite their problems, all New England state agencies appear to be agreed that "701" is a highly desirable program and that relatively little federal "red tape" has been encountered.

The SeweRodeR is preferred for all sewer cleaning!



The SeweRodeR has been on the market for over ten years, and is tested and proven. The SeweRodeR is the most efficient and economical machine ever made for cleaning sewers. In many cases it has paid for itself within 30 days.

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415 SOUTH ZANGS BLVD., DALLAS, TEXAS

How Jet Travel Will Affect Urban Land Use

A JET-LINER commuting service as a regular mode of commuter travel for passenger and freight lift in the near future is the prediction of Texan real estate man Howell H. Watson.

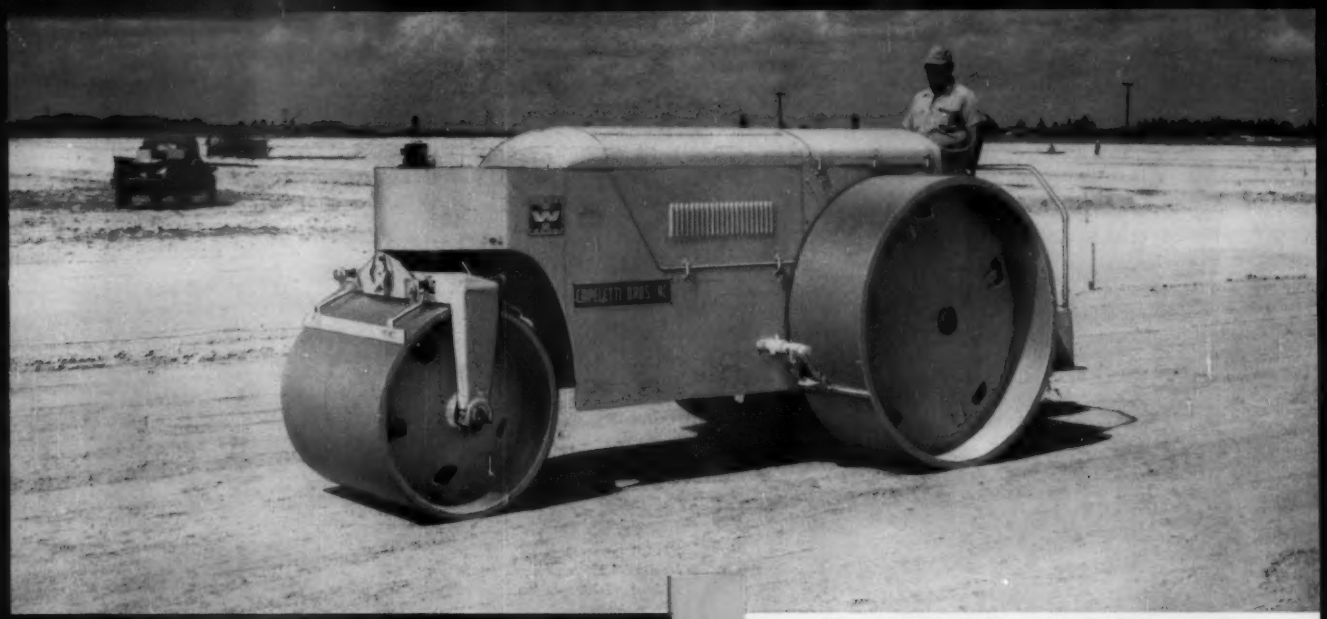
Transportation Changes

Speaking before the Society of Industrial Realtors in San Antonio recently, Mr. Watson stated that transportation is undergoing great changes at the present time and these changes in turn are altering land-use in United States and Canada.

As examples Mr. Watson cited the following:

1. Increased use of air freight to distribute cargo,
2. Building of 41,000-mile interstate highway program,
3. Improved position of railroads, and
4. The fact that the new Inter-Continental Boeing 707 which is being offered as a freight carrier may soon be used in a regular commuter service.

The jet-age, Mr. Watson said, makes it possible for suppliers dealing in relatively lightweight products to do with smaller inventories because they could depend on day-to-day supplies; new interstate highway construction, which would probably lead to the acquisition of 650,000 tracts of land for new rights of way, was also making it possible to tap industrial lands which had hitherto been inaccessible. Truckers and railroads would benefit from these improved conditions, he also predicted.



This Huber-Warco 10 ton 3-wheel is compacting a lime rock base for Capeletti Brothers of Miami.

H-W 3-wheel at work for Florida contractor

When called on to handle the rolling operations in a Hialeah, Florida, subdivision, Capeletti Brothers Inc., a Miami paving contractor, put their three Huber-Warco 3-wheel rollers on the job.

This subdivision, developed by the Palm Springs Development Corporation, included approximately 2000 homes and a new school. Capeletti handled the contract for the streets and roads in the project, as well as the construction of a 100′ x 200′ parking lot at the new school.

A typical comment about the performance of the Huber-Warco 3-wheel was voiced by Frank Worrall, the supervisor for Capeletti on this project. He stated, "The torque converter in this machine permits us to do better work with less effort." Mr. Worrall continued, "Efficiency is increased even at slow rolling speeds."

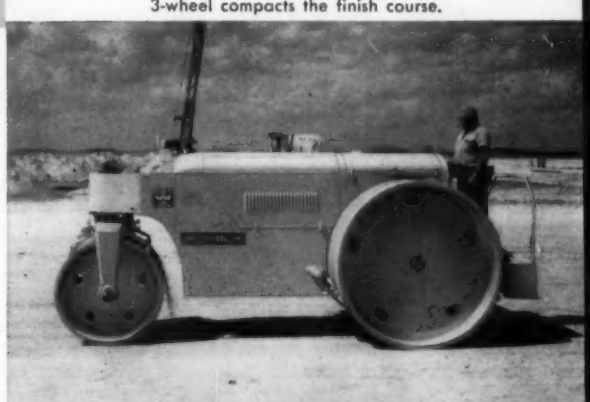
The combination of a torque converter and 2-speed transmission in the Huber-Warco 3-wheel means more economical operation, longer parts life and fast steering at all speeds.

Your Huber-Warco distributor will be glad to give you complete specifications for the standard and variable weight models in the 3-wheel roller line. He can arrange terms up to 36 months for you on the purchase of a new machine, and can provide you with a rental unit.

Huber-Warco on the job

Better work with less effort. Increased efficiency even at slow rolling speeds.

On the new school parking lot, this Huber-Warco 3-wheel compacts the finish course.



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MARION, OHIO

HUBER WARCO

TANDEM ROLLERS

MOTOR GRADERS

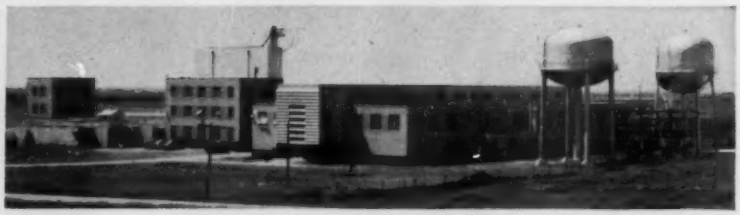
MAINTAINER

3-WHEEL ROLLERS

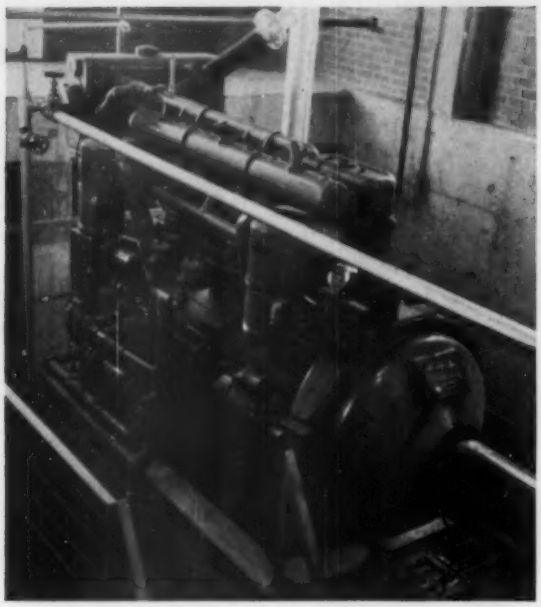
ROILINE ENGINES
(Formerly LE ROI)

* The trade mark LE ROI is used under license from Westinghouse Airbrake Co., the trade mark owner.

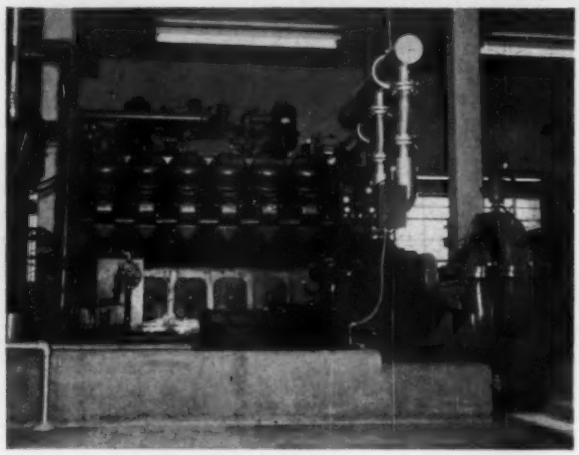
POWER FOR MUNICIPAL PLANTS



Three ROILINES pull the pumps at Oklahoma City's Lake Hefner Municipal Filtration Plant.



Model F-1500, maximum horsepower 215 at 1200 rpm on natural gas.



Model L-3460, maximum horsepower 595 at 1350 rpm on natural gas.

BASIC ENGINE CHARACTERISTICS*

GASOLINE OR NATURAL GAS					600	800	1000	1200	1400	1600	1800	2000	2200	2400
MODEL	Bore & S.	Cyls.	Displ.	Torque–rpm	BRAKE HORSEPOWER AT ENGINE SPEEDS INDICATED									
H540	4½ x 4¼	8	540	430- 900	...	64	82	99	115	130	143	155	164	170
H844	5¼ x 4⅞	8	844	637-1500	...	106	135	165	191	215	237	255	270	278
F1500	6¾ x 7	6	1503	1090- 650	125	165	200	215						
H2000	6¾ x 7	8	2004	1485- 650	170	225	270	290						
L3000	6¾ x 7	12	3006	2200- 650	250	335	405	435						
L3460	7¼ x 7	12	3468	2570- 900	285	391	492	568	595 @ 1350 RPM					
L4000	7.54 x 7.5	12	4000	2930- 900	325	446	560	645						

*With oil pump, water pump, magneto, air cleaner, carburetor, and exhaust muffler. Hp shown is maximum.

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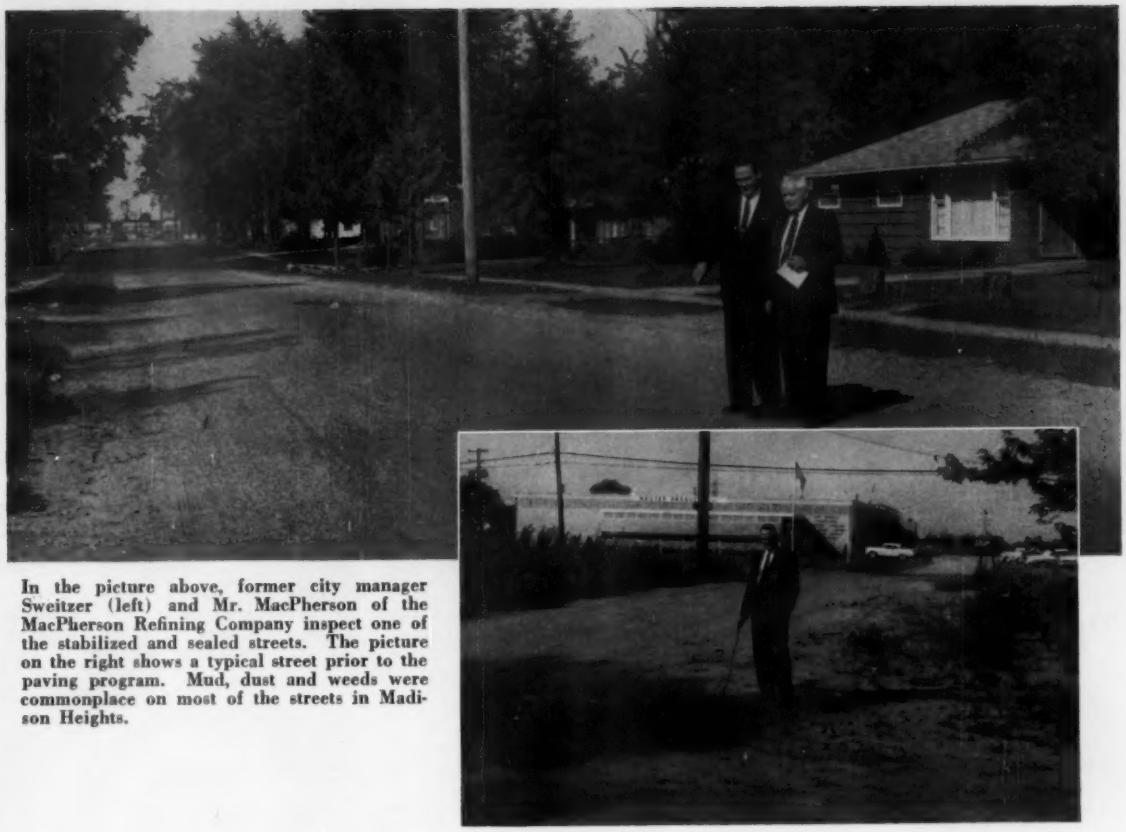


In the picture above, former city manager Sweitzer (left) and Mr. MacPherson of the MacPherson Refining Company inspect one of the stabilized and sealed streets. The picture on the right shows a typical street prior to the paving program. Mud, dust and weeds were commonplace on most of the streets in Madison Heights.

Madison Heights, Mich. combines city labor, borrowed equipment and contract oil spreading to climb . . .

Out of the Dust and Mud

By JACK P. SWEITZER
Former City Manager
Madison Heights, Mich.

STREET improvements pose one of the toughest problems of newly formed cities, especially those having a predominately rural setting. Madison Heights is such a community although it is rapidly growing into an industrial complex.

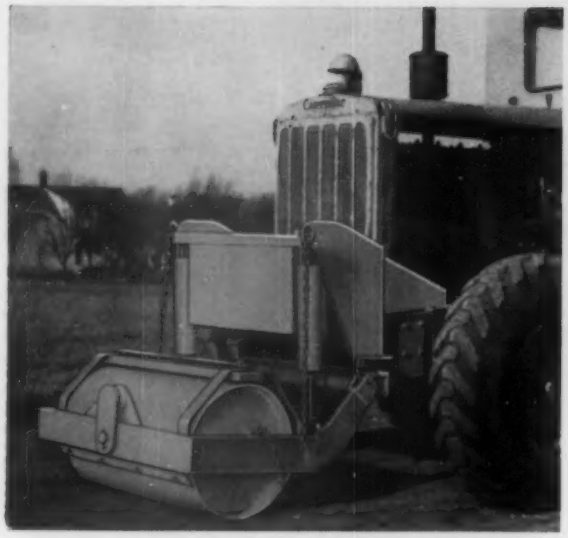
The city now has a population of about 30,000 persons and covers an area of approximately 7.5 square miles. It was incorporated in December 1955 and the writer took over the duties of city manager in December 1957. Some streets were paved but before undertaking our 1958 road program we had about 45 miles of nothing more than lanes and paths notorious for mud problems and dust hazards. Since the city is still semi-rural in nature and growing rapidly, a permanent paving program was out of the question. Our best bet was to provide a thin stabilized section, plus a wearing surface—and to do so as rapidly and economically as possible.

Combined Effort

Our city force of only nine employees did most of the work over a three-month period and also maintained other essential services normally performed by a public works department. The work not only included scarifying and shaping the surface, but also clearing much of the right-of-way of a mass of weeds and shrubs, and in some instances of trees that stood in the path of traffic. For this work a city-owned Austin-Western motor grader served as the basic tool.

In all cases we used the aggregate and other material already on the road, stabilizing it with a heavy asphalt known as road mix in this area. This material was purchased from and applied by the MacPherson Refining Company of Warren, Mich. We tried to get a three-inch mix, using the grader for this work, and maintained a uniform width of 24 feet. Compaction was obtained by rolling with a Buffalo-Springfield roller borrowed from the asphalt supplier.

The roads were then sealed, using



THE MARTIN
"GRADERROLLER"
for all types of
surface rolling

☆ cuts equipment investment
☆ always on the job
☆ boosts grader use

The idea of the Martin GraderrolleR is so simple—so basic—that you'll wonder why somebody didn't think of it before. A Motor Grader is usually on a road finishing job—so why not equip it with a retractable roller that has compaction equal to any road surfacing roller? Martin Company did it—now see what the GraderrolleR can do for you:

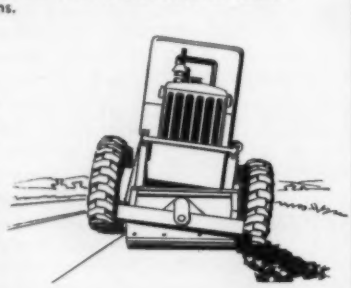
★ Save time—it attaches easily to any Caterpillar No. 12, 112 and 212 Motor Grader and is always on the job with the Motor Grader—it's a perfect companion. No need for two machines when one will do.

★ Save labor—one man handles both jobs. Perfect for building new or repairing old roads.

★ Save money—costs much less than a conventional roller. No maintenance problems.

TILTABLE, TOO

Tiltable design and hydraulic accumulator allow roller to stay level while maintaining a constant controlled compaction pressure, regardless of position of grader. The GraderrolleR is equipped with an automatic sprinkling system to keep the asphalt from sticking to the roller.



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a tack coat of MC-3 covered with ⅛- to ¼-inch size pebbles applied at the rate of about 5 yards per mile. Again we turned to MacPherson for help—and borrowed their Buckeye spreader to apply the pebbles.

Results

The 45 miles of streets paved in this manner represent about 90 per cent of the streets in the city. The work represented a cash outlay of some $60,000—all taken from the city's general funds. No part of the work was assessed nor was a tax increase required. Except for the actual application of bituminous material, all work was done by city employees.

We realize this type of program does not compare with permanent pavement but it solved our immediate problem and gives us an opportunity to go about other essential duties. Before the project, citizens were calling special meetings to protest the severe dust problem and the City Hall switchboard averaged 50 complaint calls per day. These have been eliminated and we have put an end to broken springs from cars hitting chuckholes. Also better public relations resulted from the easing of tensions caused by the inconvenience of bad roads.

Other improvements include marked traffic lanes and the installation of new street name signs. We are also taking steps to equip the public works department properly.

Noisy Pavement Gives Stop Sign Warning

THE Cook County, Ill. Highway Department plans to construct 36 more rumbler jobs this year, bringing to 134 the total of locations treated since initiation of this practice in 1955. The name rumbler pavement refers to the pebbly surface that alerts motorists at approaches to stop signs.

The rumbler effect—an audible roar—is obtained by embedding particles of slag in a coating of asphalt. The application starts 300 feet from the stop sign. This type surface not only produces a warning sound but also affords better braking and starting, especially in winter. In addition, the anchored slag does not "push" into ripples, as asphalt pavement frequently does under the impact of vehicles coming to a stop.

The binder consists of petroleum asphalt with a penetration of 100-120 and the rumbler material is 1-inch screen slag precoated with asphaltic liquid. Each strip one lane wide by 300 feet long requires 117 gallons of asphalt and 9 tons of slag.

Accident Prevention

Traffic Engineering Division surveys point out that the rumbler strips serve as a positive factor in accident prevention. A survey made prior to the first installation produced a bad record of stop-sign disobedience, ranging from 20 per cent at some locations to 62 per cent at the worst. There was reason to suspect that many who did not stop failed, because of lack of attention, to see the signs. Checks at the same intersections made after application of the rumbler treatment show "no-stop" performance completely eliminated in some instances and there has been a vast improvement in voluntary stops, involuntary stops and rolling stops.

GarWood

LOAD-PACKER® 600

NEWEST: THE ULTIMATE!

ONLY FROM GAR WOOD:

BIG SIX

PERFORMANCE

1. FASTEST OPERATION
2. GREATEST COMPACTION
3. BIGGEST LEGAL PAYLOADS
4. LARGEST, LOWEST HOPPER
5. SAFEST, MOST DEPENDABLE
6. GREATEST ECONOMY

NEWEST: THE LOAD

ONLY FROM GAR WOOD:

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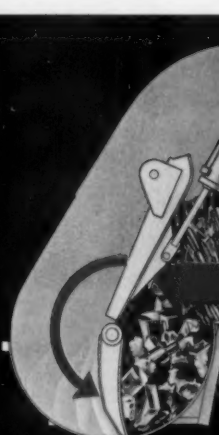
PERFORMANCE



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Crew starts reloading in
takes only 10 seconds.
the second most popular
as fast as the third. Spe

3. BIGGEST LEGAL PAYLOAD

4. LARGEST, LOWEST HOPPER

BIG SIX

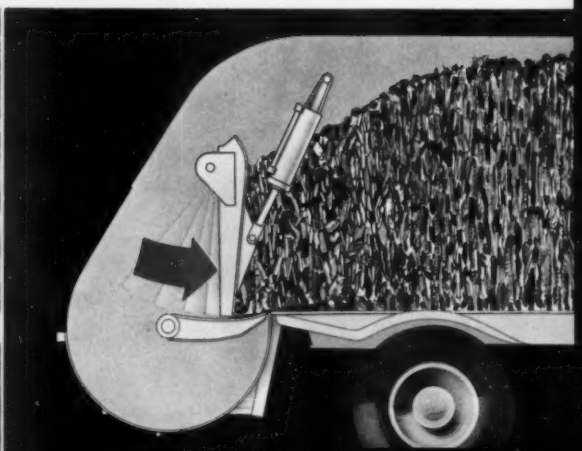
your new standard

Now, for the first time, one refuse collection Body that excels in all the prerequisites of performance. It is, of course, from Gar Wood, originators of modern, sanitary refuse collection. Its name, naturally, the LOAD-PACKER, the first, most famous name in packer bodies. Here's BIG SIX performance; the ultimate in refuse collection efficiency. Ask your Gar Wood Dealer about the LOAD-PACKER 600 . . . the refuse collection Body that's first in everything that counts . . . the only Packer that gives BIG SIX performance.

D PACKER 600

PERATION

ng in just 4 seconds . . . full cycle nds. That's four times faster than ular packer . . . almost three times . Speed means better service .



2. GREATEST COMPACTION

Packs more than any competitive body by actual tests. Rotary panel sweeps refuse to floor level . . . packing panel makes powerful direct thrust against load. Piston rods are hardened, chrome plated.

3. BIGGEST LEGAL PAYLOAD

Biggest loads on any given chassis. Two reasons . . . First: Gar Wood engineers cut dead weight to a minimum. Second: exclusive new feature results in unexcelled weight distribution. Revolutionary chassis-mount telescopic hoist eliminates heavy, conventional hoist sub-frames. Dual purpose packing cylinders keep tailgate weight down. With the 600 you carry more, yet stay within road limits.

4. LARGEST, LOWEST HOPPER

Big 1½ yard, 74 inch wide hopper, plus low loading height speeds collection, makes crew's job easier. Three men work side-by-side . . . there's no overhead restrictions . . . crew handles biggest refuse easily. And the biggest hopper means fewer packing cycles.

5. SAFEST, MOST DEPENDABLE

Controls are simple, foolproof . . . operator has positive control . . . can stop mechanism instantly. And, the 600 is built to last . . . Engineered for less maintenance. There are fewer moving parts to go wrong. It's tops for crews and public works management alike.

6. GREATEST ECONOMY

Big hopper cuts down packing cycles . . . moreover, the 10 second packing speed means the engine runs at accelerated, solenoid speeds as much as 30% less than other packers. This, of course, means less fuel consumption . . . less wear and tear on packer, chassis and engine.

LOAD PACKER: THE ULTIMATE *plus*...

The BIG SIX is but a part of the 600 story. Here are still more of the many reasons why it's a must to get the complete facts from your Gar Wood distributor:

- Simplified Design . . . fewer moving parts, less linkage, fewer adjustments. All parts easily accessible.
- Non-Selective loading . . . no delays to crush big objects . . . assures complete service.
- Hydraulic system operates at lower pressures for less strain on hydraulic system.
- Exclusive dual volume pump reduces strain of drive line by 33%.
- A body size for every operation . . .*10, 13, 16, 18 and 20 yard capacities.
- Unmatched distributor service . . . the world's top truck equipment specialists sell and service your Load-Packers. Prompt parts delivery . . . factory trained service personnel.

HYDRAULIC CONTAINER EMPTIED IN 15 SECONDS

Yes, your containers will operate with the 600's exclusive hydraulic Load-Lift. And Gar Wood's popular Roll-away, Pax-all containers can cut costs and improve sanitation on your commercial route. For the complete Gar Wood container story, see Bulletin W-211A.

GREATER STABILITY . . . LESS WEIGHT

Gar Wood, inventors of the telescopic hoist, now offer a dumping mechanism that combines fast, positive cleanout and maximum stability, with less weight and better weight distribution. Ball and socket mounting ends side load stresses. This advanced, job proved hoist from the world's leader in dump truck equipment can be counted on for long, trouble-free operation.

LOAD-PACKER® 600

a product of GarWood

Richmond, California Wayne, Michigan

Form W-221-3-58 Litho in U.S.A.

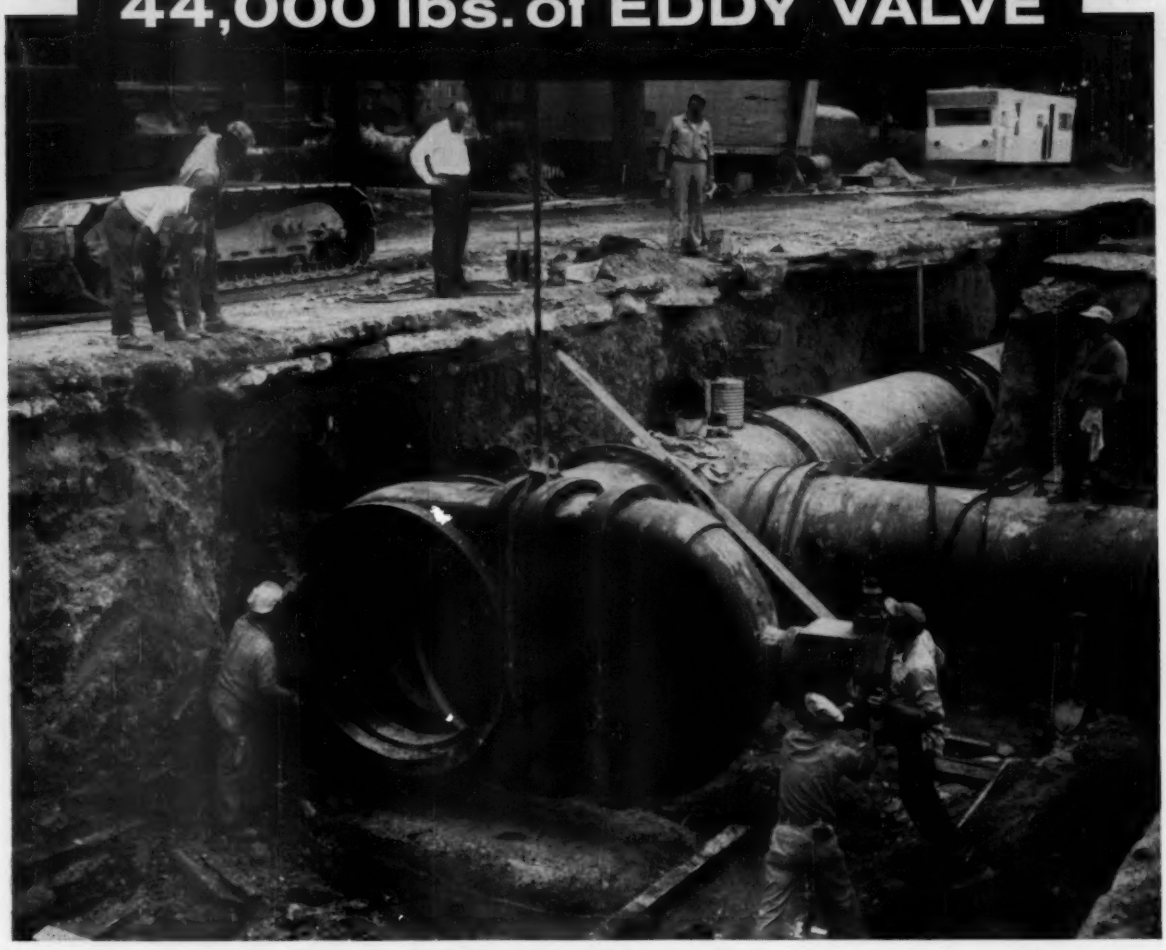
*10 yd. model—1 yd., 58 in. wide hopper.

BIG SIX STORY

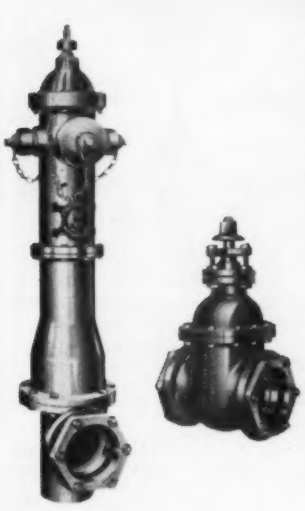
Get the complete 600 story . . . ask your Gar Wood distributor to see the colorful, sound film presentation, "The BIG-6 Story."

GOING IN...

44,000 lbs. of EDDY VALVE



Giant 60″ Eddy Valves for Buffalo, New York



As part of a major waterworks improvement program, three 60″ and fourteen 48″ 300 lb. test IBBM EDDY valves have been installed by Fago Bros., Contractors, for Buffalo, New York. Each 60″ valve weighs 44,000 pounds; each 48″, 21,500 lbs. These are BIG valves...and do a BIG job.

EDDY's ability to supply valves of this size and ruggedness is the result of engineering skill and long experience in meeting almost every service requirement. EDDY manufactures a full line of valves for underground or special service to answer almost any specification for iron body valves.

Whether your requirements are for giant 60″ valves like these, or when you need valves for normal waterworks service, the same EDDY experience in serving the engineer and his community is at your service. Why not call EDDY when valves and hydrants first appear in your plans?

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.

WATERFORD NEW YORK

Well worth your reading! This authoritative article that confirms effectiveness of Cloroben in grease and odor control:

(as published in August 1958 issue of *Wastes Engineering*)

solving

OPERATING HEADACHES

Sewage Odors Corrected by Chemical Treatment

By WILLIAM H. WECHTER, P.E.

Diplomate American Academy of Sanitary Engineers

Chief Sanitary Engineer

1st Army Engineers

At one installation which provides only primary settling of sewage prior to discharge of the effluent into the receiving waters, Cloroben is used both for odor control and to keep sewer lines grease-free. It has been particularly important to keep this facility odor-free because the primary settling tanks of the plant are in close proximity to homes.

The sewage plant odors are kept to a minimum during warm weather by providing a continuous drip of Cloroben into the influent channel of the settling tank. Because of the high grease content of this primarily domestic sewage, odors formed and grease incrustations were built up on the sewer interiors. These odors and grease deposits are now kept under control by installing at the end of the sewer a drip tank which contains a solution of Cloroben and water.

Activated sludge plant odors

At another installation which provided complete activated sludge treatment of the sewage prior to discharge into a tidal stream, Cloroben was also used very effectively for the control of odors and grease build-up. This plant concentrates the sludge prior to admission into the sludge digester. The skimmings are discharged into a sump pit where the material is retained, prior to pumping into the digester. During warm weather, after any appreciable delay in pumping, offensive odors developed very rapidly. These odors are controlled by spraying the contents of this holding sump daily with a solution containing approximately one pint of Cloroben.

The chemical, in dilute solution, was also sprayed into the digester whenever the scum built up to any extent under the digester cover. The spraying of the scum in the digestion tank with the chemical tended to keep the top solids soft and prevented them from solidifying and becoming a dense and hard cake. At this same plant, Cloroben was utilized as a "jack-of-all trades" wherever and whenever there was a possibility of odor formation or where actual odorous conditions developed. As an example of this usage, whenever any tank was taken out of service and emptied, prior to cleaning, a solution of the chemical was sprayed on the tank walls for odor control.

Septic tank odors

Recently, the author was faced with the problem of offensive odors on a large scale in many small plants consisting of septic tanks, tile fields, soil absorption beds, or covered sand filters. Many ways of correcting the existing difficulties were tried, including the use of a plank of proper length to break up the scum in the septic tanks.

We had good fortune in keeping sewage collection systems free of grease incrustations and odors, and had succeeded in keeping a primary sewage treatment plant free from odors by the addition of small amounts of Cloroben.

It was tried and we concluded that the addition of a relatively small amount of Cloroben into the dosing or pump chamber for any disposal facility, such as a soil absorption bed or sand filter, would keep the facilities operable for a considerable period of time before the sand and tile lines become clogged with grease and settled sewage solids. Since this method of treatment of a septic tank effluent proved successful, the life of many similar small facilities, such as septic tanks and tile field units installed throughout the country, may be extended and the expenditure of additional monies to replace or rebuild failing facilities postponed indefinitely.

In an effort to correct the problem of eliminating or diminishing many complaints due to foul sewage odors, the author investigated proven successful methods, in order to benefit from experience gained by others with similar problems. During research he found a translation of an extremely interesting article by C. von Malmborg, of Vasteras, Sweden in "Hygienisk Revy," 1956.

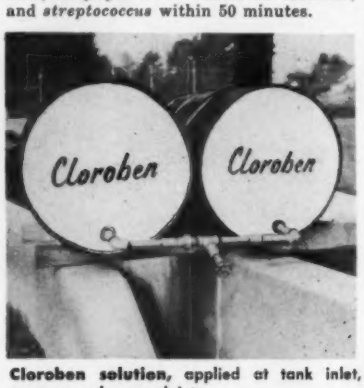
In a series of laboratory experiments conducted in Sweden, it was observed that Cloroben was effective in the killing of pathogenic bacteria and organisms normally present in sewage. The Swedish results obtained using various concentrations of Cloroben in water solution showed that:

(1) Non-spore forming bacteria (the group to which most of the bacteria belong, including the types most important in sewage works practice) were killed at a concentration of 1:1,000 after 5 minutes, and in a 1:10,000 concentration within 2 hours.

(2) Spore forming *bacillum subtilis* were killed after 5 minutes at a concentration of 1:10.

(3) *Typhus bacteria* were killed at a concentration of 1:500 in 5 minutes and the *coli bacteria* at a concentration of 1:500, in 10 minutes.

(4) At a concentration of 1:300 calf *diarrhea bacillus* was killed within 5 minutes; *paratyphus bacillus* within 10 minutes; *staphylococcus* within 20 minutes; and *streptococcus* within 50 minutes.



Cloroben solution, applied at tank inlet, overcame odor complaints.

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Yours on Request: Cloroben Technical Bulletin.

CLOROBEN CHEMICAL CORPORATION

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Incineration Costs at Louisville, Kentucky

By JOHN W. LEAKE
Director
Department of Sanitation
Louisville, Kentucky

OVER a year of actual operation pretty well substantiates our estimated cost of operating an incinerator. In fact, for the calendar year 1958 our gross operating cost amounted to $1.80 per ton, considerably under the estimated figure of $2.05 per ton. Taking into account the income received through the sale of salvaged cans, the net operating cost drops to $1.33 per ton.

We believe these figures are quite encouraging, but look for even lower costs in forthcoming years. First, the reclaimed metal market dropped considerably during the past year. As the economy picks up, so should our return from the sale of salvaged cans. Secondly, we are just now starting to dry sludge received from the Louisville Jefferson County Sewage Treatment Plant and expect the sale of dried sludge to help lower our net operating cost. The only additional cost to us in the sludge drying operation is that of electric power. The 1958 figures include manpower needed for the operation, since these men were used for other duties around the plant. We now have a six-month contract for the sale of dried sludge at $3 per ton f.o.b. our plant. Actual experience with dried sludge by the fertilizer plants in the Louisville area will determine sales prices in the future.

Table I shows the amount of refuse received and burned each month, the amount of residue hauled away and the gross monthly operating cost. We did not weigh the residue until August, thus, this item is not complete for the year 1958. Residue weight does not include reclaimed metal.

Table II lists the amount of metal reclaimed each month and the income derived therefrom. The price fluctuates from month to month and is based on the listing in the current issue of *Iron Age*.

The operating cost figures include everything except plant depreciation and debt retirement. They include all costs involved from the time the refuse is weighed until the residue is deposited at the final point of disposal. Labor costs include all operating personnel, maintenance personnel, a yard man, the scale man, wood hog operation, can baling and trucking of the residue, including rental of equipment from another city operating department.

Maintenance is not just a name on the organization chart or a hit or miss proposition. A working foreman with three men is responsible for plant maintenance. Preventive maintenance is practiced throughout the installation. For example, the residue and reclaimed can conveyors are adjusted and lubricated daily. Areas under the conveyors are cleaned daily and each furnace is shut down, cleaned and inspected every three weeks. While each unit is down, the night crew has the responsibility of painting the exterior. After 12 to 15 months of operation we found it necessary to replace the first five courses of refractory material at the outlet end of each unit.

We maintain a card inventory of all units and parts, with a duplicate set of cards. These cards contain the name or description of the part, a record of inspection dates, work done, type of lubrication required and frequency of lubrication, points to be lubricated and number of spare parts in stock if applicable.

The girl responsible for this file forwards the maintenance foreman's copy to him at the proper time and he has one week to carry out the proper inspection and maintenance and return the card with appropriate notes. Thus, a continuous record is maintained at all times.

Our operating figures also include

Table I
Refuse Received and Monthly Operating Cost for 1958

Month	Collected by City Equipment Tons	Collected by Private Haulers Tons	Total Tons	Residue Tons	Operating Cost
January	10,816	4,040	14,856	*	$ 28,761
February	9,374	4,340	13,714	*	24,099
March	11,202	4,657	15,859	*	24,356
April	12,361	6,041	18,402	*	24,048
May	11,651	5,950	17,061	*	30,594
June	10,344	4,988	15,332	*	39,121
July	12,510	5,769	18,279	*	26,306
August	13,100	5,732	18,832	5,299	32,811
September	10,915	5,038	15,953	4,920	25,829
October	10,699	4,857	15,556	4,515	23,655
November	9,225	3,171	12,396	4,523	36,649
December	10,808	5,024	15,832	4,298	30,552
Total	133,005	59,607	192,612	——	$346,781

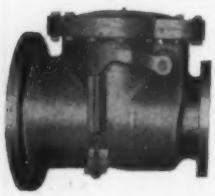
* Not weighed January to July, inclusive.

Table II
Railroad Car Weights of Salvaged Metal & Sales Receipts

Month	Amount Salvaged Tons	Receipts
January	611	$ 4,535
February	614	5,755
March	726	8,309
April	1,012	9,299
May	764	4,990
June	634	6,037
July	688	6,546
August	565	8,232
September	605	9,706
October	675	9,566
November	566	9,078
December	536	7,656
Total	7,996	$89,709

CHECK VALVE SLAMMING

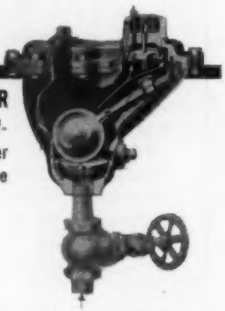
IS LIKE A SERIES OF BODY PUNCHES!



Little by little it "softens up" a pump discharge line for the final knock-out. Moderate slamming causes leakage, throws pipes out of line or causes other damage that may go undiscovered for years. Heavy slamming often causes serious damage and service interruption.

Why risk trouble and service loss? Ludlow and Rensselaer List 340 non-slamming check valves *are non-slamming under the most severe conditions,* thanks to adjustable spring tension. They are recommended as standard equipment wherever slamming is likely to occur.

WRITE TODAY for L&R Check Valves Catalog, showing 3" to 30" sizes, with or without lever arm and spring. All materials and workmanship exceed the A.W.W.A. requirements for gate valves and fire hydrants.



POSITIVE CONTROL OF AIR INLET OR DISCHARGE is afforded by Ludlow or Rensselaer air and vacuum and air release valves.

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VALVES AND HYDRANTS

THE LUDLOW VALVE MANUFACTURING CO., INC., TROY, N. Y. – SINCE 1861

the cost of spare parts and replacement of large pieces of equipment. For example, we estimate the residue conveyors will last about four years. These require four long heavy chains, plus numerous flights. Each year we purchase one chain and some flights, charging the cost to that year's operating expense. The can conveyors will last only about 18 months so replacement purchases are made on that basis. Actual experience will require some reconsideration and revision of these schedules.

In comparing costs, one must also consider the type of operation. The Louisville incinerator operates 24 hours a day, seven days a week, 365 days per year. Operating personnel receive time and a half for holidays. The entire work force consists of 52 men, including the plant superintendent, four foremen and also the maintenance foreman and his crew.

Costs

The type of plant affects both initial and operating costs. The buildings, stacks, can-reclamation system and refuse storage bin are all based on a capacity of 1,000 tons per day. Initially we installed three International rotary kiln type furnaces each rated at 250 tons per day. The foundations for the fourth unit are also in place as well as the residue conveyors. Thus, the initial construction price of $3,815,000 does not reflect the true cost of our present capacity of 750 tons per day. A complete description of the Louisville installation was published in the November 1957 issue of THE AMERICAN CITY.

Both crane cabs are air-conditioned—an item the uninitiated might call a frill. Such is not the case. Actual experience has proven this to be a wise investment, for the improved atmosphere and comfortable temperature in the cab keeps the crane operator alert throughout the workday.

As in all large installations, we have experienced some minor difficulties, but no more than was expected. During the past year we found it necessary to haul garbage to another point of disposal only once—and then for the short period of half a day. At this particular time two units were down for minor repairs and the remaining unit could not keep up with the complete load.

The extreme cold during this past winter caused some difficulty as ice formed on the can-reclamation conveyors. We rectified this by installing blower-type heating units directly over the conveyors; these units blow warm air on the portion subject to freezing.

Mixed collection accounts for the large amount of residue, for we get a large amount of ashes, bottles and other non-combustibles besides the cans. Burning is complete. Now and then a large chunk of wood or other solid mass of combustible material passes through the units without being burned—but no papers, rags, fruit peels, or the like.

The plant also has a clean bill of health from several air pollution studies. These studies were conducted by the federal government and also by the local air pollution authorities.

Most of the plant residue has been used to cover and seal the old dump. When that job is completed, we will have little difficulty disposing of the refuse. It is water quenched, extremely solid, and makes excellent fill material. Private citizens and industry are constantly asking for this residue for fill purposes.

SUMMER'S ON THE WAY

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Assure your community of Sustained Accuracy. With CALMETS in the lines, you know that you'll be receiving the maximum revenue for your Water Department . . . and with a very minimum of maintenance . . . due to CALMET'S long, rugged life.

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CALMET METER DIVISION

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Stimulate Competition on Public Business

By R. G. WESSELLS
Procurement Officer
District of Columbia Government

TODAY there is a trend toward negotiating public business without competition. It is a testimonial to the integrity of the public purchasing agent. It can promote efficiency and economy in government if it is used wisely, or it can defeat the objectives of the professional public purchasing agent if it is not completely controlled and properly administered. It should not become a substitute for organized competitive bidding procedures.

Governmental procurement probably controls the expenditure of more money today than any other single element in the economy. Every business firm wants to share in this business. If we are lured away from securing competitive bids solely to simplify our operations, we will sacrifice a fundamental responsibility of the public purchasing agent.

In 1957, approximately 20% of all District construction contracts were awarded to firms which had not previously bid with the District. The probable difference between the prices quoted by the new bidders and the firms which had bid previously with the District totalled more than $180,000 for the year.

The vendor's desire to make the sale is the predominant motivating force in establishing prices. The amount and type of competition, and the buyer's purchasing policies dictate the need for quoting the lowest price. If you curtail competition in the expenditure of the public's money, you will not only stimulate higher prices; you will also stifle the need for product improvement.

If you only receive one, two, or three bids, find out why others didn't bid. Invite criticism of your invitation in your bid papers. Employ purchase specifications which adequately express your needs and which are not unduly restrictive of competition. Strive always to use the same specifications over and over again, with improvements based on bid results, in order to promote standardization and to permit your suppliers to be familiar with your requirements.

Avoid requirements for bid samples wherever possible; they cost the bidder money. Don't arbitrarily refuse to consider a bid received after the time set for opening. If you are assured that it was mailed prior to opening through an official U. S. Post Office postmark, then it is in the best interests of your agency to consider it. After notifying a bidder that his bid cannot be considered because it was received too late, make late bids available to your buyers in their analysis of bids.

Have a master list of prospective bidders developed specifically to meet your needs.

In closing, I would like to emphasize competition among *responsible* suppliers. We are not seeking bargains. We want the right article at the right price at the right time, from the right supplier. We can determine whether or not it meets these criteria only when all bids are in and price plus all other factors have been evaluated.

Leasing Needed Municipal Equipment

IN THESE days government and business are seeking new sources of operating capital. The Post Office Department alone pays in excess of $38,000,000 a year in rentals. Continual search for funds by budget directors and purchasing agents in many municipalities has led them to lease such equipment as fire engines, addressing equipment, and typewriters. The City of New York has found it advantageous to lease libraries rather than make large capital expenditures for them.

Our economy has demonstrated that he who waits pays more and, in the face of the decreasing purchasing power of the dollar, budget directors have realized the advantage of acquiring equipment today and spreading the cost over a period of years.

In some instances, municipalities and other political units have found it expedient to lease rather than advertise for bids. Then, too, the purchase money was not available in the budget. This, however, did not lessen the need.

Types of Leases

There are numerous types of leases. Short term leases, usually referred to as rentals, are for a period measured in months, while long term leases are spoken of in annual terms. Many of these leases provide for title to pass to the lessee after the expiration of the lease term. In every instance the community would have the right to purchase the equipment at any time during the term of the lease and a percentage of the lease payments would be credited toward the purchase price.

National Equipment Rental, Ltd., Floral Park, N. Y., has added a department to service communities, school boards, hospitals, volunteer fire departments, etc. They have been of service in leasing such a variety of items as typewriters, high school's and fire engines. They have even supplied a sewage disposal plant when it was needed.

Leasing provides a method of replacing worn-out capital equipment when maintenance costs are in excess of replacement cost on a lease basis.

Many manufacturers have discovered that leasing is an efficient tool for facilitating the sales of their equipment to budget-strangled agencies and permits the budget director to bypass the perennial obstacle of "no money for capital expenditures." Stated in its simplest terms, leasing is a method of financing needed equipment.

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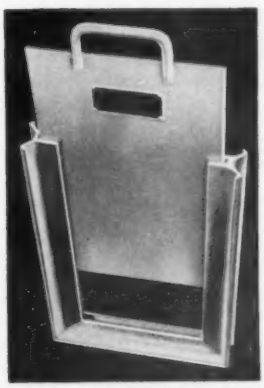
1-pc Aluminum Guides & Stop Plates or Sluice Gates

Mean Easy Installation, Greater Economy!



The one-piece construction of our aluminum guides eliminates clumsy machine grooved or riveted flat bar assemblies. Their ease of installation and low cost (on a per foot basis, less than that of steel or other metal) are points to consider.

Strong, durable, non-corrosive qualities of Aluminum make it important to Water and Sewage. *Washington Aluminum Engineers are available for discussion of design problems on any installation at point of planning. No obligation.* Write for nearest representative.

WASHINGTON ALUMINUM COMPANY, Inc.

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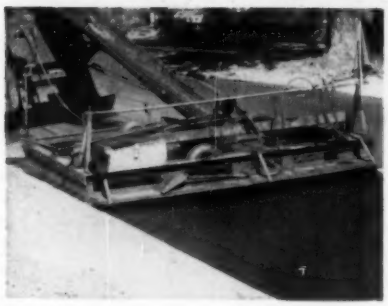
Slurry-Seal Spreader



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NEW TARCO Spreader made of **aluminum structural shapes,** bolted, forms light, yet rugged box. Two **slurry-leveling blades:** one semi-rigid; one flexible rubber adjusts to pavement contour by 5 screw-type rods. Completely equipped: heavy **drag chains,** 2 retractable **traveling wheels;** water **sprinkler;** telescoping **tow bar;** operator's **cat walk.**

For more spreader details—or more information on NEW Slurry-Seal Method see your TARCO dealer or write to us.

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Frank L. Friedli, *Manager En-Tronics Sales, The Cooper-Bessemer Corporation, reports on...*

How automation pays off at Nantucket

Nantucket Gas and Electric Company had a costly power plant problem caused by Nantucket's population variation from a normal 3500 to a summertime 15,000. Now, everything is under control with a *fully automatic* Cooper-Bessemer En-Tronics system.

Peak load on this resort island requires three Cooper-Bessemer engines driving generators totaling 2950 kw capacity. The background photo shows this installation.

The En-Tronics control system, shown in the other photo, makes possible unattended operation. It starts engines, puts them on the line when the load builds up, takes them off when not needed, maintains correct frequency at all times, and increases plant efficiency over manual control. It also improves plant reliability, sensing irregularities and taking corrective action quickly.

Mr. C. G. Snow, Vice President of the Nantucket utility says, "It is expected that cost of the En-Tronics installation will be paid off rapidly from savings."

Find out how this new automatic control can be applied to *your* advantage. Write for free copy of new Bulletin E-88.

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Modern Water Rates—Part IV

How Often Should Water Meters Be Read?

PROBABLY only one good reason exists for billing the residential water users on a monthly basis rather than quarterly. If you bill them monthly, you increase the number of times that the customer pays at the usually higher rate contained in the first block of most meter rates. You also increase the number of times that those who do not use much water still have to pay the minimum rate. If you feel that the increased revenue realized by monthly billing justifies the added cost of reading the meters and processing the bills, then your use of monthly billing is well justified.

There are, of course, other intangible advantages in monthly billing. Many times customers prefer paying relatively small bills frequently, than larger bills infrequently, even though the larger bills may total less than the small. Also a bill arriving once a month reminds the user that the water system is in operation, even though this reminder may be somewhat painful. The great record of reliability maintained by most water works has had the disadvantage of causing the public to forget about them or to feel that the reliability is simple and easy.

Despite the fact that reading meters on a quarterly basis will lower operating costs, the practice of preparing bills on a monthly basis is still strong. A study of more than 120 selected water works made by THE AMERICAN CITY five years ago, showed that nearly half billed on a monthly basis, that somewhat over one-third billed quarterly, and that nearly 10% billed bimonthly. Of the balance, a few read the meters once every six months, and an equal number read them only once a year.

The great preference for monthly meter reading appears in the smaller systems. As the number of services increases, the cost of reading and billing the services becomes more apparent, and more and more systems use the less costly method. A summary of these practices runs as follows:

Population	Monthly	% Billing Quarterly	Other
Up to 5,000	83	7	10
5,000-15,000	55	27	18
15,000-75,000	36	46	18
Over 75,000	29	57	14

Thus, as far as residential meters are concerned, the force of economics favors billing on a quarterly basis. Commercial and industrial services, of course, being larger and involving a greater volume of water and a more substantial transaction should be billed more frequently.

A few cities ask the water user to read the meter, record it on a post card, and mail it to the water department. This asks a great deal of the water user. It was forced on many water works during the days of manpower shortage of World War II but no real need for it exists today.

ANSON WATER DISTRICT, MAINE

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 3,000	$0.30
Next 7,000	.20
Next 30,000	.10
" 50,000	.08
Excess	.07

Minimum Quarterly Charges

Meter Size (in inches)	*Water Allowance (in cubic feet)*	*Charges*
⅝ or ¾	2,000	$ 6.00
1	6,000	15.00
1½	15,000	28.00
2	30,000	43.00
3	60,000	67.00
4	90,000	93.00
6	180,000	156.00

If more than one household is supplied through a single meter, minimum charges are increased $1.80 per quarter per household.

Flat Rates

Homes and Businesses	*Annual Charge*
One family—for first faucet	$8.00
First additional faucet	2.00
Lavatory, etc.—each	2.00
Washing-machine	2.00
First water closet	5.00
Each additional water closet	1.00
First bathtub/shower	5.00
Each additional bathtub/shower	1.00

Minimum Charge: $8.00 per year. Where dwelling is occupied by more than one family, full rate for each additional family for first faucet and water closet, and one-half rate for other connections used in common.
Additional Flat Rates: for boarding houses, garages, barns, sump pumps, soda fountains, schoolhouses, overnight cabins, ornamental fountains and fish ponds.

Fire Protection

Sprinkler Service Size (in inches)	*Annual Charge*
2	$25.00
4	40.00
6	60.00
Lawn sprinkler (including charge for one sillcock)	10.00
Hand hose (including charge for one sillcock)	5.00
Public and private hydrants	50.00
Inside private fire plug	10.00

Typical Quarterly Costs

Gallons	*Cubic Feet*		*Charges*
9,000	1,200	Minimum	$6.00
15,000	2,000	Minimum	6.00
30,000	4,000		11.00

General Data

Population served			2,300
Miles of mains			21.5
Services	*Number*	*Percent*	*Metered*
Domestic	519		None
Commercial	22		100%
Other	5		20%
Hydrants	62		
Supply—Pond			
Treatment—Sodium hypochloride			
Plant capacity			3 mgd
Average demand			400,000 gpd

Remarks

1. Service lines provided to property only.
2. Public Utilities Commission figured costs of new mains in new subdivision.
3. Water rates last revised in 1953. Only meter rates were increased.

WILLIAM G. HARTWELL
Superintendent and Treasurer
Anson Water District
North Anson, Maine

ATLANTIC, IOWA

Rates Per Month

Gallons	*Inside City*	*Outside City*
	—*Per 1,000 Gallons*—	
First 5,000	$ .47	$ .71
Next 15,000	.35	.53
" 25,000	.25	.38
" 85,000	.20	.30
Excess	.17	.26

Note: All bills are calculated on basis of monthly use. However, customers using less than 10,000 gallons per month will be billed quarterly unless monthly billing is requested.

Minimum Charges

Meter Size (in inches)	*Charge*
⅝x ¾	$1.40
¾	2.00
1	2.75
1¼	3.50
1½	4.00
2	5.00
3	10.00
4	15.00
6	25.00

Flat rate—Minimum flat rate water service $1.40 per month.

General Data

Population served		7,500
Miles of mains		21.8
Services	*Number*	*Percent Metered*
Domestic	1,985	97.5%
Commercial	291	98%
Other	7	100%
Supply—Wells		
Treatment—Iron and manganese removal, chlorination		
Plant capacity		1.5 mgd
Average demand		0.7 mgd

Service Lines and Main Extensions—The utility maintains no part of the service line, and provides none of the cost of new mains for new subdivisions within the city.
Charges and Billing—The Atlantic Mutual Utilities is not concerned with sewer services or charges in any

Photo by Bourino Studio

8" Transite Sewer Pipe being installed, Winchester, Mass.

"Transite Sewer Pipe gives us the maintenance-free results we want...no root trouble, no infiltration, and no breakage in service."

...says James D. Halwarz
Superintendent of Water and Sewer Dept., Winchester, Mass.

"And because of its ease of handling and speed of installation, our final costs are less than with other materials," Mr. Halwarz continues. "We first started using Transite in 1935 to eliminate the cleaning of water mains. We liked it so well that less than a year later we started to use Transite Sewer Pipe. In over twenty years of using it, we have yet to clean or replace a single length of Transite Sewer Pipe. Transite is specified for both water and sewer mains in the town of Winchester."

Each year, in every part of the nation, we see significant increases in the use of Transite® Sewer Pipe. To find out why, send for the new Sewer Pipe data kit—containing flow rates, new Transite crushing strengths, and TR-165, the informative brochure on Transite Sewer Pipe, its application and installation. Write, today, to Johns-Manville, Box 14 AC, New York 16, N.Y. In Canada, Port Credit, Ontario.

Transite Ring-Tite® Coupling . . . tight, lasting seal against roots and infiltration of ground water.

JOHNS-MANVILLE PRODUCTS

JOHNS-MANVILLE

way. For billing it uses National automatic billing equipment with multiple classification keyboard and with summary tapes.
Rate Revision—Water rates were last revised in 1955 at which time they were increased 10%. Water use was not affected by the rate adjustment and no further adjustment is needed at this time.

Typical Monthly Costs

Gallons	*Charge In City*	*Charge Outside City*
3,000	$1.41	$2.13
5,000	2.35	3.55
10,000	4.10	6.20

J. H. Germain
Superintendent
Atlantic Municipal Utilities
Atlantic, Iowa

BERLIN, N. H.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
Service charge	$2.10
First 1,500	.36
Next 3,500	.265
" 5,000	.22
" 10,000	.18
" 20,000	.145
Excess	.12

Minimum charges—Minimum yearly meter charge—$50.00
Sprinkler charges: 6c per head

Flat Rates

Unit	*Annual Charge*
First family	$13.20
Second "	10.80
Third "	9.60
Fourth "	8.40
Maximum rate for private dwelling house of one family	30.00
Office and stores, faucet	12.00
Bath tubs, each and washbasins	3.00
Water closets	6.00
Stable	12.00
Each additional animal	3.60
Hose (maximum use—2 hrs day May-Oct.)	4.80

Fountains

Size Jet	*Charge*
1/16 inch or less	$4.80
1/8 inch	12.00

Not to be used more than 4 hrs. per day May 1 to October 1. All fountains with orifice or discharge greater than 1/8-inch diameter supplied with water by meter

Typical Quarterly Costs

Gallons	*Cubic Feet*		*Charge*
9,000	1,200	Minimum	$7.50
15,000	2,000		8.83
30,000	4,000		14.13

General Data

Population served		19,000
Miles of Mains		55
Services	*Number*	*Percent Metered*
Domestic	3,535	10%
Commercial	75	80%

Supply—Bean and Keene Brooks, Ammonoosuc River and a caisson well.
Treatment—Chlorine.

Plant capacity	6 mgd
Average demand	2.7mgd

Remarks

1. Service lines provided by Water Works to the property only.
2. Costs of new mains paid for and installed in thickly settled areas by Water Company.
3. Berlin Water Works not responsible for sewer services, or the billing and collecting for these services.
4. Rates last revised January 1, 1957 when increased 11%. Water use was not affected. Possibly still further adjustment of the rates is needed.

Ernest E. Tankard
Superintendent
Berlin Water Works
Berlin, New Hampshire

BOUNTIFUL, UTAH

Rates Per Month

Gallons	*Per 1,000 Gal.*
First 7,000	Minimum of $1.60
Next 16,000	.20
" 50,000	.16
" 167,000	.12
Excess	.10

Typical Monthly Costs

Gallons	*Charge*
3,000	Minimum $1.60
5,000	Minimum $1.60
10,000	2.20

General Data

Population served	14,000
Miles of mains	45
Services	
(100% Metered)	*Number*
Domestic	3,056
Commercial	160
Other	None

Supply—Mountain streams, deep wells, and water purchased from the Weber Basin Conservancy District.
Treatment—Ammonia and chlorination.

Remarks

1. Service lines are maintained to the property only.
2. The city does not stand the cost of new mains in new subdivisions.
3. The Water and Sewer Department operates both water and sewer services, and bills and collects for both.
4. In billing Burroughs Sensimatic, Series 300 is used.
5. Water rates last revised in 1947 when they were increased 10%. Water use was not affected by this adjustment. Further adjustment is now needed.
6. The city does not provide water to anyone outside the city limits, nor does it make a fire protection charge.

Wilfred H. Williams
City Recorder
Water and Sewer Dept
Bountiful City, Utah

BRISTOL, VA.

Rates Per Month

Gallons	*Per 1,000 Gallons*
First 2,000 or less	Minimum $1.25
Next 18,000	.45
" 30,000	.35
" 50,000	.30
" 200,000	.25
" 200,000	.225
" 500,000	.175
Excess	.15

Meter Rental Charges

Meter Size (in inches)	*Annual Charge*
¾ or less	None
1	$3.00
1½	6.00
2	9.00
3	18.00
4	30.00
6	60.00

Fire Protection, Private

Connection Size (in inches)	*Annual Charge*
4	$30.00
6	48.00
8	78.00
10	144.00

Fire Protection, Public

The City pays the Water Department $60.00 per year per hydrant. There are 330 hydrants in service.
Tapping fee and installation charges $50.00 each permit within city; $75.00 each permit without city.

Typical Monthly Charges

Gallons	*Charge*
3,000	$1.70
5,000	3.05
10,000	4.85

General Data

Population served	20,000
Miles of mains	70
Number of services—4,563 customers billed	10/58.
Approx. 4,600 services, 100% metered.	
Supply—surface water	
Treatment—coagulation, settlement, filtration, chlorination, fluoridation.	
Plant capacity	5 mgd.
Average demand	3 mgd.

Remarks

1. Service lines provided to the property only.
2. The Utilities Board stands none of the costs of main extensions in new subdevelopments within the city.
3. The Bristol Utilities Board operates water sewer and electric services, and bills for alll three.
4. In billing, National Cash Register automatic billing equipment is used.
5. Water rates were last revised in 1948, at which time they were increased 25%.

Earl C. Coalson
Superintendent
Water and Sewer Departments
City Utilities Boaad
Bristol, Virginia

CLAY CENTER, KAN.

Rates Per Month

Cubic Feet	*Per 100 Cu. Ft.*
First 250	$.40
Next 750	.25
" 1,000	.22
" 10,000	.20
Excess	.10

Minimum Monthly Charges

Meter Size (in inches)	*Charge*
1 or smaller	$1.00
1¼	2.00
1½	3.00
2	5.00

Above 2 inch add $2.00 per month per additional ½ inch nominal diameter.
Outside City Rates—The same as the above schedule plus 5%. Minimum charge of $1.50 per month for a 1 inch service or smaller.
Water for tank trucks—50c per load or, 50c per thousand gallons.

Connection Fee

Size Corporation & Service Line	*Charge*
¾ inch with ¾ inch meter	$45.00
¾ " " ¾ " "	50.00
1 " " ¾ " "	55.00
1 " " 1 " "	60.00

Add $10 additional charge on each rate for outside city service.
All corporation and service lines and meters over 1 inch charged at cost, and cost of installation (approximate).
Fire hydrants provided and maintained by Water Department at charge of $5 per month each.

Typical Monthly Charges

Gallons	*Cubic Feet*	*Charge In City*	*Charge Outside*
3,000	400	$1.38	$1.44
5,000	667	2.04	2.14
10,000	1,333	3.61	3.79

General Data

Population served	4,700
Miles of mains	20
Services—2,000; 100% metered.	
Supply—wells.	
Treatment—Chlorine and polyphosphate	
Pump capacity	3.7 mgd
Average demand	0.9 mgd

Remarks

1. Service lines are maintained to the property only.
2. The Light and Water Department of the city stands the cost of main extensions in new subdevelopments within the city.
3. The Department has nothing to do with sewer services or sewer charges.
4. In billing for water use, Burroughs automatic billing equipment is used.
5. Water rates last revised in 1953 when they were increased.

Harold R. Jolkmann
Superintendent of Utilities
Light and Water Department
City of Clay Center, Kansas

ENGLEWOOD, COLO.

Rates Per Month

Gallons In City	*Gallons Outside City*	*Per 1,000 Gallons In City*	*Per 1,000 Gallons Outside*
First 3,000	First 3,000	$.40	$.55
Next 12,000	Next 9,000	.35	.39
" 85,000	" 24,000	.30	.35
" 150,000	" 114,000	.22	.32
" 750,000	" 850,000	.18	.27
" 4 million	" 14 million	.15	.23
" 25 million	" 15 million	.14	.21
Excess		.12	.19

(Continued on page 167)

A sure sign of spring for 50 years...

IOWA *hydrant on the job—neat, attractive, efficient. Easily serviced by one man.*

IOWA *valves and hydrants ready for installation—a familiar scene in hundreds of communities.*

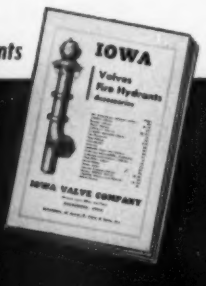
IOWA VALVES AND FIRE HYDRANTS • 1909-1959

• This spring—as every spring for the last 50 years—more and more IOWA valves and hydrants are being put in place to serve the needs of hundreds of growing communities.

This spring, more than ever, waterworks officials and engineers will specify IOWA. Experience of 50 years shows them that IOWA valves and hydrants are built to specifications PLUS—have that extra quality of materials, that extra precise fitting and assembly that makes for longest life and easiest maintenance.

That's why IOWA products are a good buy—this year and every year. And IOWA's high standing in the waterworks field, backed by ample resources, assures parts and replacements will always be available for economical future maintenance. This long-time future service is part of what you buy at IOWA. That's why IOWA is a good company to do business with...this year...or any year.

Let us send you details on Iowa's complete line of valves and hydrants



IOWA

VALVE COMPANY

A Subsidiary of James B. Clow & Sons, Inc.

Oskaloosa, Iowa

Minimum Charges

Meter Size (in inches)	Charges per Month In City	Outside
⅝	$1.50	$1.65
¾	2.10	2.50
1	3.45	4.15
1¼	5.50	6.60
1½	6.85	8.25
2	10.95	13.20
3	20.50	24.75
4	34.10	41.25
6	68.50	82.50
8	109.50	132.00
10	157.50	189.75

Fire Protection, Private

Sprinkler Connection Size	Charge Per Month In City	Outside
4 " inch or smaller	$3.00	$5.00
6 "	6.00	10.00
8 "	12.00	20.00
10 "	21.00	35.00
12 "	35.00	55.00
Each private hydrant	4.00	5.00
Each public hydrant	2.00	2.50

Flat Rates

Facility	Quarterly Charge (Available only within City)
1–3 rooms	$1.30
4–5 "	1.60
6–7 "	1.85
8–9 "	2.10
Each additional 2 rooms over 9	.25
Bath and/or shower	1.30
Water Closet	1.35
Automobiles and Automatic Washrs, each	.60
Dishwasher	.70
Garbage Disposal	.50

Other Water Rates

Purpose	Charge per Quarter or Month
Irrigation—Per front foot of property	$11.25 quarter
Irrigation—Per square foot of property	00.09 "
Construction—Frame House	$3.60 flat charge
Construction—Brick House	5.40 flat charge

Tank truck service—inside city—50c per 1,000 gal.; $5.00 min. per month.
Tank truck service—outside city—60c per 1,000 gal.; $5.00 min per month.
Permit connection—inside city $5.00 plus labor charge.
Permit connection—outside city $7.00 plus labor charge
Permanent connection materials — Invoiced cost plus 20%; meter charge varied.

General Data

Population served		33,000
Miles of mains		77
Services	Number	% Metered
Domestic	8,900	16
Commercial	600	100

Supply and treatment—The water supply comes from the South Platte River. Treatment is in a modern treatment plant.
Plant capacity and average demand—22.5 mgd. capacity, and 8.0 mgd average demand.
Service lines and new extensions—The city water department maintains no part of the service line, but does provide all of the costs within the city limits of new mains.
Charges and billing—The Water Dreartment operates both water and sewer services, and bills and collects the sewer charges along with the water charges. No automatic billing equipment is used.
Rate revision—The last rate revision was July 10, 1958, whan the rates were increased 10%. The water use was not affected. Further adjustment is still necessary.

Typical Monthly Costs

Gallons	Charges In city Min.	Outside Min.
3,000	$1.50	$1.65
5,000	2.20	2.43
10,000	4.30	4.77

HAROLD H. BABCOCK
Utilities Commissioner
Englewood, Colorado

FALLS CHURCH, VA.

Rates Per Quarter

Gallons	Per 1,000 Gallons In City	Outside
First 10,000 Minimum	$6.00	$8.01
Excess	.40	.40

Apartment houses—Rates for apartment houses and multiple-family dwellings determined by amount of water required by each seaparate dwelling unit.

Connection Charges

A charge of $80 is made for a ¾-inch connection with a ⅝-inch meter. Larger service lines and meters are charged at actual cost of service and meter.

The city pays the Water Department $40.00 per year per hydrant.

Typical Quarterly Costs

Gallons	Charge In City	Outside
0,000	$6.00 (Min.)	$8.01 (Min.)
15,000	8.00	10.01
30,000	14.00	16.01

General Data

Population served	45,000
Miles of mains	170
Services (100% metered)	Number
Domestic	12,000
Commercial	500

Treatment: Treated water is purchased from Washington, D. C.
Pumping plant capacity: 10 mgd
Average demand: 3.5 mgd.

Remarks

1. Service lines provided to the property only.
2. Mains laid in new subdivisions are installed at the expense of the developer. Along existing roads, the city pays for the costs of main extensions, charging $2.50 per front foot when water service is desired. This pays for a 6" main; if larger main installed, extra cost borne by city. The same goes for new subdivisions.
3. Water rates were last revised in 1957 at which time they were increased 20%. The rate adjustment did not affect water use, and no further rate adjustment is needed.

JAMES W. HEAD, JR
Director of Public Utilities
City of Falls Church
Falls Church, Virginia

(See page 169)

MAXIM evaporators

are under constant test at the enlarged Maxim Test Station in Waterford, Connecticut. Full density sea water, in continuous supply, assures the best possible conditions for research, development and testing — another reason why you can specify Maxim with confidence.

Maxim Evaporators may be the answer to your potable water problems. Write for full information.

extra benefits from
MAXIM
Test Station

Emhart Manufacturing Company
Maxim Division
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In our new plant (shown below)

HERSEY WATER METERS

are made by the most modern techniques and machines, from the automatic bronze foundry to the final test lines producing up to 7000 GPM of water.

Here is made the most complete line of Water Meters for every purpose.

HERSEY MANUFACTURING COMPANY

(Established 1859)

DEDHAM, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

"You can't buy a better Water Meter than HERSEY."

ITHACA, N. Y.

Rates Per Quarter

Cubic Feet	Per 100 Cubic Feet In City	Outside
First 1,200	$.25	$.50
Next 8,800	.21	.36
Next 90,000	.15	.25
Excess	.11	.18

Minimum Quarterly Charges

Meter Size (in inches)	Cubic Feet Allowed	Charge In City	Outside
Small	1,200	$3.00	$6.00
1	3,200	7.20	13.20
1½	5,500	12.03	21.48
2	11,200	23.28	40.68
3	16,000	30.48	52.68
4	24,100	42.63	72.93
6	42,100	69.63	117.93

Unmetered Water Rates

Unit	Charge In City	Outside
Water Building Permits	$5.00 (Min.)	$7.50 (Min.)

(Plus charge per amount of building material used; rate depending on type)
Carnivals.....Min. per day $20.00
Circuses.....Min. per day $30.00
Bulk Water—for filling spray rigs, tank trucks, etc.: $1.00 per load.
Fire Protection outside city—$75.00 per hydrant per annum.

Typical Quarterly Costs

Gallons	Cubic Feet	Charge In City	Outside
9,000	1,200	$3.00 (Min.)	$6.00 (Min.)
15,000	2,000	4.68	8.88
30,000	4,000	8.88	16.08

General Data

Population served..... 34,000
Miles of mains..... 81.2
Services—6,528 domestic, 100% metered.
Supply—Six-Mile Creek.
Treatment—chlorine, lime, alum, soda ash, sulphur dioxide and filters.
Plant capacity..... 4 mgd
Average demand.....3.25 mgd

Remarks

1. Service lines are provided by the city to the curb box if service is copper tubing; otherwise, the property owner bears the expense.
2. The city stands the cost of new mains.
3. The Water and Sewer Division of the city's Department of Public Works operates both water and sewer services. It bills and collects sewage charges along with water charges.
4. Water and sewer rates were last revised January 1, 1958, when they were increased 15%. It is still too early to determine if the rate adjustment affected the water use.
5. Burrough's automatic billing equipment is used in billing for water and sewer services.

CHARLES W. RICH
Assistant to Superintendent of Public Works
Water and Sewer Division
Ithaca, New York

Contract Awarded For Sea Water Conversion Pilot Plant

A CONTRACT for construction of a $250,000 pilot plant for conversion of sea water at a rate of about 100,000 gallons per day has been awarded by the Southern California Edison Company.

The equipment, to be designed and furnished by Cleaver-Brooks Special Products, Inc. of Waukesha, Wis., will convert sea water to fresh for the Mandalay Steam Generation Plant which is now under construction near Oxnard, Calif.

The Mandalay Station is scheduled to start operation this spring.

Hunt for Documents in Urban Renewal Area

IN PHILADELPHIA the Redevelopment Authority is taking steps to insure the preservation of any historical documents that might be uncovered during the demolition or rehabilitation of old buildings in the Washington Square area.

W. Marshall DeHaven, director of projects, said specifications covering such a contingency would be written into a contract with the wrecking company. Any such documents would be turned over to a Redevelopment Authority inspector on the spot and later sent to a historical society.

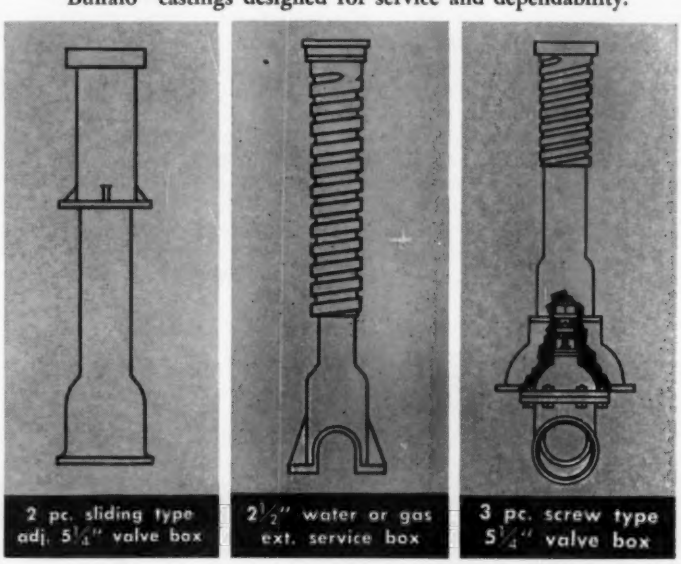
Dr. Richard N. Williams, 2nd, director of the Historical Society of Pennsylvania, had expressed fears that such documents might be lost during demolition operations. Investigators have often found old letters, books, newspapers or similar items tucked away under eaves, under floors or behind walls.

BUFFALO PIPE & FOUNDRY

BUFFALO MUNICIPAL CASTINGS

are available in every size and style!

No matter what size, shape or style municipal casting you may desire—you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

SINCE 1930
BUFFALO PIPE & FOUNDRY CORP.

Write or wire Dept. J for Bulletin M11.

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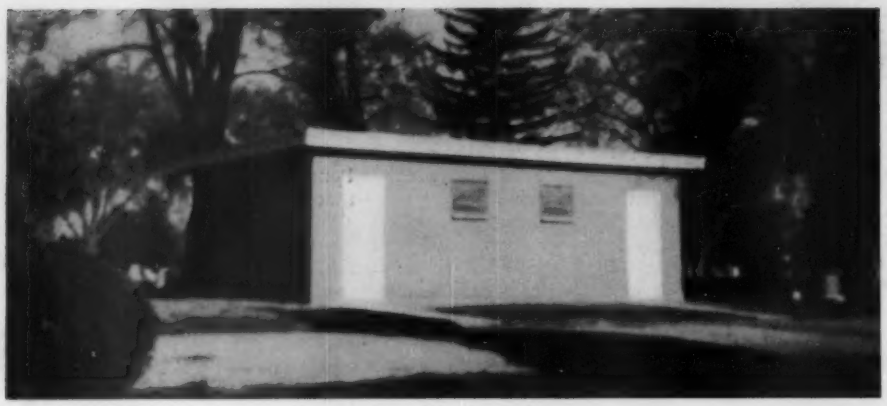


Here is one of the new buildings with storage provided at the rear.

Rebuilding Public Rest Rooms

. . . wins honorary title for park superintendent

By G. S. BOWEN
Superintendent of Parks
Boise, Idaho

IN the official directory of Boise, you will find after my name, three titles: park superintendent; cemetery sexton; and city forester. If you inquire around City Hall to any extent you will find that I have one honorary title, not yet officially approved by the City Council: Lord High Privy Councilor.

This title was earned honestly. Two years ago when the Council appointed me park superintendent, I discovered that the job carried with it the maintenance of a number of ancient public rest rooms, mostly of the frame type, all difficult to maintain both from a structural and a sanitary standpoint. The public lost no time in calling these dilapidated rest rooms to my attention. So in response to public demand and also because of my personal dislike of the repugnant structures, I was successful in persuading the City Council to allot funds to rebuild three of them. We plan replacing two more during the coming year.

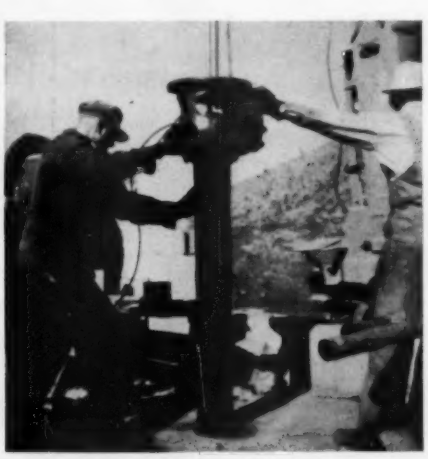
New Design

After considerable personal study and investigation on how others have solved this same rather sensitive problem, I developed a design that is inexpensive, appears attractive and requires little maintenance. Most of the work can be done by park employees. The block work appeared rough to an experienced mason, but a coat of paint helped to conceal any irregularities.

We started our work early in October of 1957, as soon as the peak labor season was past. The men first excavated trenches, placed concrete footings 16 inches wide and 8 inches deep, 18 inches below the finished ground level. They then laid three courses of concrete blocks 8 x 8 x 16 inches and then pumice blocks of the same dimensions to the eaves. They also placed steel window sash that tilts inward and has a removable screen section on the outside. They next installed the lighting and then supplied the roof, surfacing it with one layer of 30-pound asphalt-base felt and three layers of 15-pound rag felt,

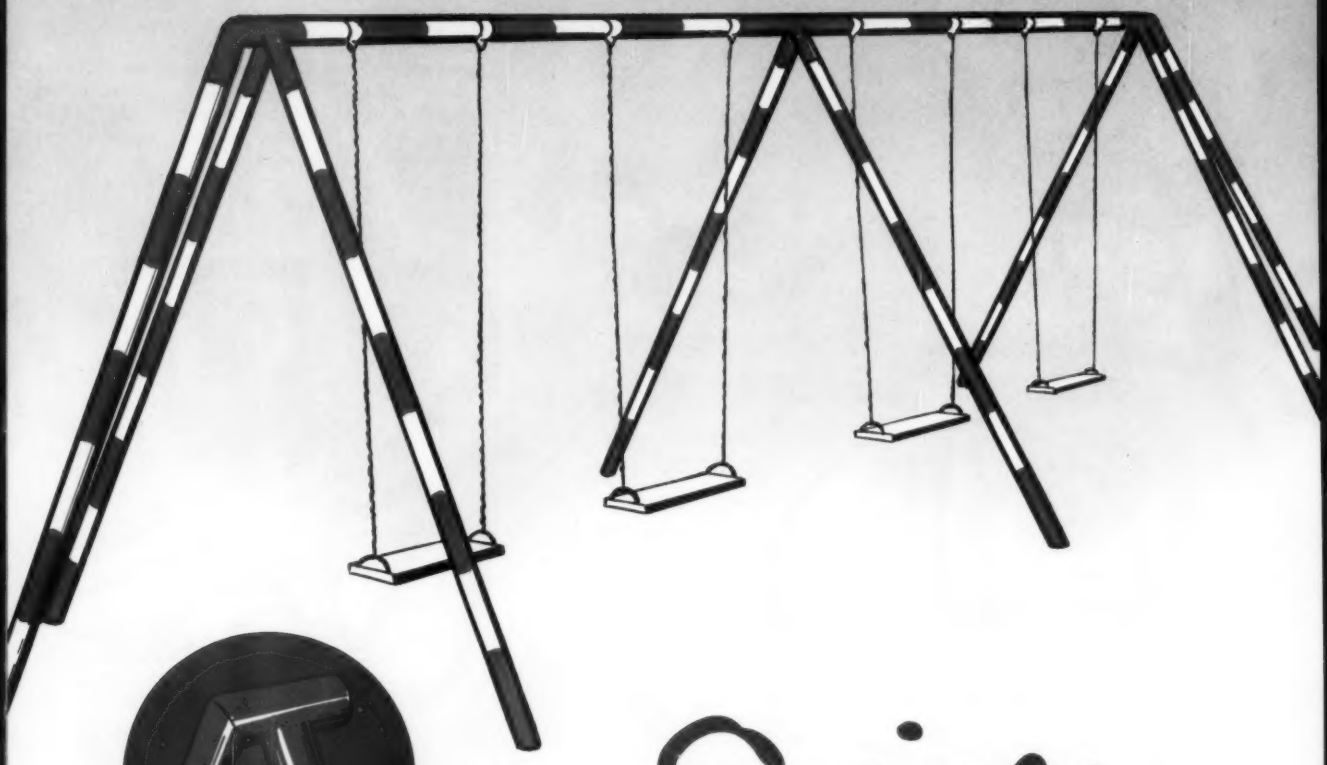
Left:
Plumbing fixtures and other interior work were installed during winter, off-peak season.

Right:
At Camel Back Park, a 400-gpm Jacuzzi pump, drawing from a 123-foot well, provides the water needed.



. . . IT'S ALWAYS PLAYTIME WITH GAME-TIME EQUIPMENT

Now in Brilliant **DUO-COLOR**



Swings

Game-time heavy duty swings (illustrated) have a 3½" O.D. top rail to which legs of 2⅜" O.D. are welded for greater safety. On top rails, sockets overlap a full 8". The complete frame is fabricated of tested structural steel.

MARK OF QUALITY

● Attractively finished in alternate blue and white or red and white blocks, each 12" wide, these new swings add sparkle to any playground.

Game-time swings are the only all-steel formed swings on the market. Safety is Game-time's first consideration in design, construction and materials. No castings are used anywhere. No structural members depend solely upon bolts, nuts or bosses inside fittings at joints. Seat saddles, hanger pendants and "S" hooks are of case hardened steel. Frames are fabricated of tested structural steel pipe, hot dip galvanized and then finished in bright baked-on colors. All joints are welded for extra strength and smoothness.

72 models with a choice of 6 different seats.

GAME-TIME, INC.

Wholly Owned Subsidiary of Simpson Mfg. Co.

Litchfield, Michigan

GAME-TIME

STAINLESS STEEL SLIDES

Attractively finished in red, white and blue, they bring color dynamics to any playground.

Game-time slides are safety-engineered with an enclosed safety platform, speed reducing end and single piece formed chutes. All joints are electrically welded.

Game-time slides are available in solid stainless steel, with stainless steel bedways or in hot dip galvanized steel and finished in bright baked-on color. Shipped in four sections for easy assembly. 18 models.

ATTRACTIVE
DURABLE
SAFE

GAME-TIME

MOUNTAIN CLIMBER

In alternate red, white and blue sections.

Game-time Mountain Climbers are made of weather-resistant hot dip galvanized materials with welded joints. A handhold is always within reach and youngsters must lean forward, not backward. Factory assembled in 3 basic units, they assemble in 10 mintues. Require but four concrete footers.

Write for free catalog on complete line and information on Game-time's FREE planning and layout service.

GAME-TIME, INC.

Wholly Owned Subsidiary of Simpson Mfg. Co.
Litchfield, Michigan

Form 25m-1058 Litho in U.S.A.

mopped on with hot asphalt. The roof slopes 8 inches for the width of the building.

With this much complete, the men then took time out to collect leaves and do other late fall clean-up work incidental to buttoning up for the winter. When cold weather set in, too cold to work outside, we went back to work on the buildings, roughing in the plumbing, pouring the concrete floors, laying up partition walls, and installing sanitary fixtures. We supplied Crane Santon #3-301-T rest room fixtures with #110 FY V Royal Sloan flush valves. We also placed panels, doors and other necessary fixtures and awaited spring for the opportunity to paint.

Painting

Finally, when warmer weather arrived, we painted the buildings inside and out, using first a masonry prime and filler. We then painted the interior with Glidden Spred Satin, a washable masonry paint that permits one to remove even lipstick, crayon and most other foreign materials without too much difficulty. We painted the exterior with Spred Glide-On, alternating between Sunshine Yellow and Lawn Green to provide variation in the different rest rooms.

Design

Regarding the design of the rest rooms, we adopted three different floor plans. Types I and II are divided into three rooms, the center being used for storage, and differ only in overall width and in the number of stalls. The storage room also provides a convenient place to conceal water pipe inlets, drain outlets and vent manifolds. Each room has a floor drain. All water taps in the sinks are threaded to receive a hose to facilitate cleaning. The Type III floor plan provides an additional interior room for storage of equipment of the recreational department in parks where a supervised summer arts and crafts program is held. We will be glad to provide floor plans to any city official who requests them.

Sanitation

Along with emphasis on good construction, we also have emphasized regular and thorough maintenance and sanitation. This project has rewarded me with the honorary title that we referred to at the beginning of the article.

FOR MUNICIPAL OFF-STREET PARKING

a PARCOA Automatic Parking System ... will easily solve your parking problem

You have full control of parking, day and night with PARCOA—
- You do it at low cost
- You have the finest operating equipment

Efficient performance is built in by parking specialists who have provided—
- for smooth, safe, fast parking—no confusion
- for operation without costly maintenance
- for operating flexibility and dependability

PARCOA is the pioneer in automatic parking systems and the recognized leader today. PARCOA engineers can install a parking system fitted to your specific needs with the overall installation based on the many successfully operating PARCOA automatic parking systems. Find out how PARCOA parking gates can solve your problems. Write for Bulletin No. 580.

Choice territories available. Distributor inquiries invited.

A few of the Municipalities that have solved their parking problems with Parcoa.

City of Battle Creek, Mich.
City of Chicago, Illinois
City of Cleveland, Ohio
City of Columbus, Indiana
City of Columbus, Ohio
City of Detroit, Michigan
City of Evanston, Illinois
City of Findlay, Ohio
City of Grand Rapids, Mich.
City of Ithaca, New York
City of Oakland, California
City of Petersburg, Virginia
City of Port Jervis, New York
City of San Jose, California
City of Sioux Falls, S. D.
City of Miami, Florida
City of South Orange, N. J.
City of Superior, Wisconsin
City of Vincennes, Indiana
City of Watertown, New York

FLEXIBLE OPERATION

These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY for cars parking on monthly or reserved basis.

COIN OPERATION for controlled transient parking

TICKET ISSUING SYSTEM for merchants restricted free parking service.

TIME-DATED TICKET DISPENSER for automatic self service in merchant participation parking.

PARCOA® DIVISION

Johnson SINCE 1909 Systems

JOHNSON FARE BOX COMPANY • Subsidiary of BOWSER, INC.
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DISTRICT FIELD OFFICES: NEW YORK: 420 Lexington Ave., New York 17, N. Y. BOSTON: 25 Southwest Park, Westwood (Boston Suburb), Mass. CLEVELAND: 4209 W. 150th St., Cleveland 11, Ohio. SAN FRANCISCO: 468 Ninth Street, San Francisco 3, Calif. DALLAS: 1706 Hinton, Dallas 19, Texas.

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AMERICAN *Fastite*** JOINT*
CAST IRON PIPE

From its plant location in the heart of the industrial South, as well as from strategically located stocks, the American Cast Iron Pipe Company ships pipe fast!

More and more, municipalities, contractors, engineers and utility superintendents are discovering that American's fast service, plus the speed and ease of installation of American Fastite Joint* pipe, is a combination that's hard to beat.

American Fastite Joint is the newest cast iron pipe joint with only *one* component—a double-sealing, dual-hardness rubber gasket. Readily available in all standard sizes, 2″ through 48″ diameters, with 6″ through 20″ pipe available in 20-foot lengths, American Fastite Joint cast iron pipe offers maximum economies for all liquid services.

Call your American Cast Iron Pipe Company representative now. Find out how quickly he can deliver your order for American Fastite Joint cast iron pipe.

*Patent applied for:
Underwriters' Laboratories, Inc., approved.

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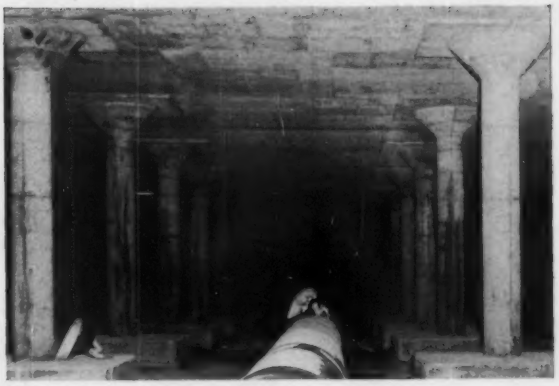
San Francisco • Denver
Pittsburgh • Orlando
Minneapolis • Cleveland
Birmingham

Beneath this park . . .



. . . a 4-mg reservoir.

Water Development Planning Pays Off

FEW cities, even during bulging post-war years, can equal the comparative growth of residential Oak Park, Mich. Incorporated as a village in 1927, the population in its 5½ square miles had increased to only 5,000 persons by 1950. But in 1957 there were more than 35,000.

Pacing subdividers, builders and developers were the service and utility crises usually attendant to such growth. But storage and distribution of an adequate water supply loomed as the most pressing, despite the fact that soon after incorporation early town fathers had foreseen the need for a supplementary supply. They had installed the 40,000 feet of 16-inch cast-iron pipe as the nucleus of the city's present water system, which is served through a 54-inch main which comes from the City of Detroit to the south.

Fortunately, treatment was not a consideration. Oak Park, then as now, purchased its supply from Detroit, treated and ready for use. The main problem was to supply water to the users who had increased 600% in seven years.

Planning Was the Answer

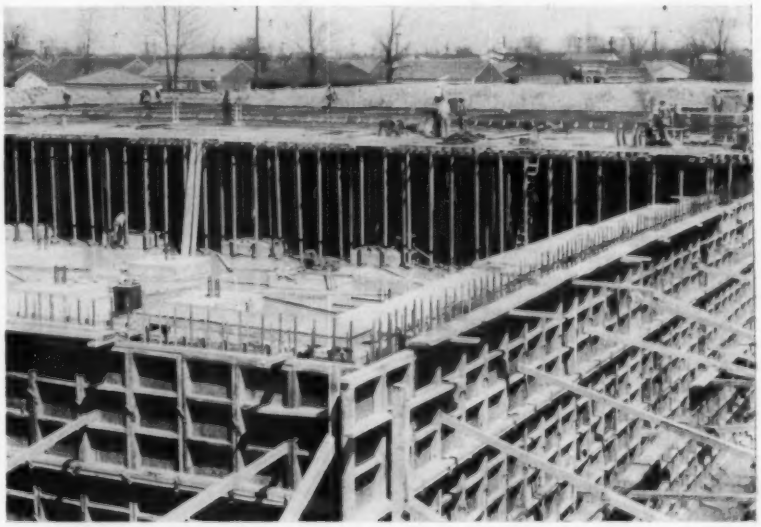
During the summers of 1950 and 1951 water became so scarce that rigid restrictions were imposed upon water use. Early in 1952, the consulting engineering firm, Pate & Hirn of Detroit was retained by the city to prepare a Master Water Plan and to proceed with the first stage of such a plan in cooperation with Joseph B. Thompson, superintendent of the City of Oak Park water supply system.

After extensive study, the consultants presented a plan of four phases, two to be completed under immediate priorities and two to be developed in the future, extending distribution to serve an ultimate area population of 45,000 consumers.

Phase I: To create a secondary source of supply from the City of Detroit, one mile of 24-inch Lock-Joint concrete pressure pipe was installed. Supplementary office and storage space was built, including a completely equipped meter repair shop (Total cost—$165,000).

Phase II: To increase storage to meet the immediate demand, a 250,000-gallon Chicago Bridge & Iron elevated storage tank was constructed in the northern part of the city. One pumping station equipped with Autocon controls, three Fairbanks-Morse pumps and one mile of 12-inch cast-iron water main was completed by 1954 (Total cost—$220,000).

Phase III: To assure adequate



Reinforced concrete foundations, base and column pads were placed in April 1957. Walls, column and cover were cast in May and restoration of earth cover and planting of Major Park was completed late in 1957.

Austin-Western variable 3½ to 6-ton portable tandem roller demonstrates superior maneuverability.

"A-W portable tandem roller cuts costs, does better compaction job faster!"

says Elizabethville, Pa., street supervisor

"An excellent piece of compaction equipment," says Jack Wells, street supervisor for the Borough of Elizabethville, Pa. He's referring of course to Austin-Western's variable 3½ to 6-ton portable tandem roller.

Easy to operate

He adds, "It works fast and does a superior job of compacting. It's easy to operate, too. You can operate the hydraulic steering controls from either right or left side with equal ease on the comfortable full-width seat. Visibility is good. You can look right down and see what you're doing at all times. You can roll within a quarter-inch of curbing!

"And it's economical. We haven't had any downtime or maintenance problems. Removable panels make service and adjustments very easy. We have some steep grades in the borough, but the A-W travels to jobs under its own power. It always does a good compaction job, on any grade.

Pays for itself

"In one 3-month period, we used it to apply 9000 sq. yd. of the smoothest blacktopping you've ever seen. And at a good saving. The A-W roller is really helping to pay for itself!"

A-W variable weight rollers are designed for high quality, low cost compaction. Also available in 5-8, 8-12 and 10-14 tons tandem—8-11, 10-12 and 12-14 tons with three wheels.

Learn for yourself about this popular line of rugged variable weight rollers. See your nearby Austin-Western distributor or write us today!

Austin 1858 AUSTIN-WESTERN 1958 100th YEAR PARTNERS IN PROGRESS **Western**

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

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Power graders • Motor sweepers • Road rollers • Hydraulic cranes

supply as needed, a 4,000,000-gallon, concrete ground-level storage reservoir with pumping station attached was planned under centrally located Major Park. The pumping station was to be equipped with three 2,300-GPM Layne-Northern vertical turbine pumps with provision for a fourth at a later date. A booster pumping station at the southern source of supply was planned with four Layne-Northern vertical turbine pumps (13¼-mgd). In addition, 6,000 feet of 16-inch and 24-inch Lock-Joint concrete pressure pipe and 6,000 feet of 12-inch cast-iron pipe were planned (Total cost—$553,000).

Phase IV: To meet future demands of Oak Park's projected ultimate population of 45,000 persons, 16,000 feet of transmission lines (including 5,280 feet of 12-inch pipe already installed for $53,000), will be placed as demanded or as funds become available.

All pumps are controlled from the Water Supply System office by Sparton Telemetering Equipment and Simplex Instruments.

An unforeseen wave of new residents during construction operations on Phase II resulted in excessive demands upon the water system even after its completion in 1954. As a result, rigid water-use restrictions were again imposed upon users during summer months.

As a result, the city immediately decided that Phase III, originally planned for the future, should be given top priority in municipal project development.

Phase III was completed during the summer months of 1958, and with unrestricted water use prevailing, all demands placed upon the system were met without difficulty. Maximum demands reached 10.5-mgd with peak hour demands as high as 800,000 gallons per hour. Phase IV is still being held to serve the potential demand when needed.

Pawtucket Builds Zoo

(Continued from page 22)

Pawtucket's school children to select names for the new animals.

The city followed this up early in February with a public subscription campaign. We started the ball rolling with our own donations, and soon contributions came pouring in —from veterans' organizations, service clubs, individuals, and businesses. The money received was set aside for the purchase of new animals.

In March we had a stroke of luck.

We saw an item in the paper telling of the impending sale in Sarasota, Fla. of the surplus animals of Ringling Brothers, Barnum & Bailey's Circus. Public Works Director Keith immediately got in touch with the circus officials.

Mr. Keith, together with Superintendent of Parks Harold E. Williamson flew down to Sarasota to negotiate with the circus officials. For $4,800 they were able to obtain a baby elephant, a zebra, two polar bears, two lion cubs, and another leopard. In addition, the circus threw in a pair of mated lions.

Pawtucket, however, had no cash to pay for these animals, and we didn't wish to hold another public fund-raising campaign. Accordingly, we arranged that when the circus made its Rhode Island stand at Louis Pieri's Rhode Island Auditorium in Providence, opening night would be Pawtucket Night—with part of the proceeds going to benefit the animal fund.

Will House the Animals

While making final arrangements for the circus' Rhode Island stand at his auditorium, Mr. Pieri learned that due to costs the circus was no longer bringing its menagerie with it on tours—save in New York—and it was seeking a place to farm out the menagerie for the 11 months of the year when the circus was not in New York City. Mr. Pieri immediately telephoned Mayor McCarthy.

The next day Pawtucket officials conferred with officials of the circus and the arena in New York City. As a result of this conference, Ringling Brothers, Barnum & Bailey Circus agreed to house its menagerie at the Pawtucket zoo for 11 months of the year. The cost—$1 plus maintenance and upkeep charges. Also, Pawtucket agreed to provide transportation for the menagerie when the circus needs it for its stand at Madison Square Garden in New York. An outcome of this was that the menagerie was on hand for Pawtucket Night at Pieri's Rhode Island Auditorium after all.

To care for the animals, the city picked one of its municipal park workers, Norman J. Coyle. Although he had had no previous experience with wild animals, he had long been fond of all kinds of animals. Within the short space of five months he had lion, tigress and leopard eating out of his hand.

To help defray the costs of the menagerie's maintenance and upkeep, the zoo sets up popcorn, soda and other concessions.

Austin-Western Model 60 Sweeper leaves street and gutter fresh and clean.

Austin-Western Model 60 sweeper replaces 6 men, 2 trucks in Batavia, N.Y.

"The Austin-Western sweeper is maneuverable . . . tricycle steering lets you get right in close to parked cars. Plenty of visibility, too. The operator sits right up front where he can see what he's doing and where he's going. You don't have such good visibility on sweepers with front end hoppers!" That's what Batavia, N.Y., maintenance chief, Art Snyder, has to say about sweepers.

Rear dump feature important

"On the average," Mr. Snyder reports, "we can sweep 18 miles before making a run to the dump. The 4-plus cu. yd. hopper really holds a load! The A-W has plenty of speed to travel to the dump and back quickly. The hydraulic controlled rear dump feature saves time too. Just dump and drive forward, all in about a minute.

"One man on the A-W 60 replaces 6 men and 2 trucks. Before, when we dumped on the street, the trucks and men followed and hauled the loads to the dump. Now trucks and men can be kept at their regular job assignments and no extra help need be hired. These are real dollar savings that mean a lot to Batavia and to our department's budget!

Sold on Austin-Western

"We've been using Austin-Western sweepers here for over 20 years. We've also got a 1933 A-W 12-ton 3-wheel roller and a 1948 99H grader. Service from our A-W distributor is good. Maintenance on all our A-W equipment is low. Just routine service . . . never any downtime. We're sold on Austin-Western!"

Two Austin-Western sweepers available—Model 60, with 4-plus cu. yd. hopper capacity, and the 2-cu.-yd. Model 40. For complete information, see your nearby A-W distributor or write us today!

Austin 1859 AUSTIN-WESTERN 1959 100th YEAR PARTNERS IN PROGRESS Western
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

Stretching the long arm of the law in Fresno

48 Solos and Servi-Cars travel 30,000 miles a month keeping law and order in this California city of 123,000.

HARLEY-DAVIDSON Police motorcycles

help stretch equipment and manpower dollars too!

Caught in the squeeze between rising manpower and equipment costs and rapid urban expansion, progressive police departments everywhere are relying more and more on Harley-Davidson motorcycles. Besides offering the most flexible operation on wheels (see key at right), both *personnel* and *budget* go further . . . the officer on a Harley-Davidson gets where he is needed most in the shortest time possible — and does it more economically.

Ask your Harley-Davidson dealer for details on '59 Solos and Servi-Cars. Ask, too, about features including new Solo transistor radio that boosts coverage without draining the battery. Or write Harley-Davidson Motor Co., Milwaukee 1, Wis., for free illustrated literature.

Here's the key to your overall picture:

Solo

1. Patrolling highways and expressways
2. Spot traffic control
3. Emergency and special duty

Servi-Car

4. Parking inspection
5. Crime prevention and criminal apprehension
6. Patrolling business and residential areas

HARLEY-DAVIDSON
Police Motorcycles

The body of a woman pedestrian killed by this car has been removed by police and Inspector Salemme photographs the car.

Instant Photographs in Police Work

By JOHN J. SALEMME, *Inspector*
Police Department
Newton, Mass.

ON EVERY accident or crime assignment, I bring a Polaroid Land 4x5 Film Holder for my Speed Graphic camera. I use conventional film only when I know a lot of copies or enlargements of a particular shot will be needed.

Picture in 60 Seconds

Developing a negative and making an 8x10-inch print takes more than an hour for me—a lot of time when you shoot and process 75 to 100 pictures per month. With this Polaroid Holder—it is interchangeable with regular cut film holders—I have a picture with plenty of detail a minute after I shoot.

In addition to 42 foot patrolmen covering the business districts, the department maintains 10 radio-equipped squad cars for patrolling the residential areas, a total strength of 159 officers. Men are assigned to the cars individually and in pairs, depending on the time of day.

The department also has one regular and three auxiliary ambulances and a patrol wagon. Its photographic equipment includes a 4x5 "press-type" camera, a special "mugging" camera in the identification laboratory and a fully-equipped darkroom.

Most of the cases we run up against involve traffic accidents, breaks, robberies, assaults and city claims. In each instance, I take a series of five or ten pictures to try to reconstruct the case. Using conventional film, I would spend a third of the year in the darkroom developing, printing and drying almost 1,000 prints.

Additional Duties

That is a lot of time to spend in a darkroom when, in addition to serving as police photographer, I am partly responsible for making out accident reports, issuing various permits and working on divisional reports.

With the Polaroid Holder and film, I don't have to set foot inside the darkroom because I get a print only one minute after making my exposure. If necessary, I can hand detectives a full set of pictures before we leave the scene.

The 24-ounce Holder slides into my camera exactly like conventional 4x5 film holders of the "lock-rib" type. There is no need for any readjustment of the focusing system or ground glass. The holder remains in the camera so that picture after picture may be shot as fast as the film packets can be inserted.

Typical pictures show the direction of travel of both vehicles; exact location of the collision; distance traveled and final position of each vehicle after the impact; width and grade of the road; location of stop signs, street lights and other vehicles in the area; position of bodies, etc.

On the recommendation of the Polaroid Corporation, each print is put in an acetate sleeve to keep it free of finger marks.

Other Possible Uses

Other uses in police work with the newly-marketed 4x5 Land film holder include these: identification; "mug" shots; line-up; footprints; fingerprints; traffic violations; and training.

Atlanta builds for the future

with Armco Steel Pipe water supply lines

Atlanta is preparing now for expected industrial and residential growth by extending water lines in adjacent Fulton County, Georgia. This forward-planning has paid off for Atlanta in the past by attracting new industry with a ready source of water.

Shown above is part of the most recent 1½-mile installation of 30- and 36-inch diameter Armco Steel Pipe along Atlanta's Fairburn Road. This pipe is 5/16-inch wall thickness and was installed in 50-foot lengths. It is part of the more than 150,000 feet of Armco Pipe installed in the Atlanta area over the past five years to expand water facilities.

You too will find that Armco Steel Pipe can solve your water transmission problems. Its high strength, ductility, smooth-as-glass interior linings, and bottle-tight joints mean trouble-free water lines for years and years to come. Write us for more information on Armco Steel Water Pipe. Armco Drainage & Metal Products, Inc., 5509 Curtis Street, Middletown, Ohio.

For this Atlanta water line, lengths of Armco Pipe were joined by Dresser Couplings, with thrust lugs to take longitudinal thrust.

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

Supervisor of Consumer Service Alton Mason uses the radio with telephone type mike to read an electric meter . . .

Meter Readers Take to the Air

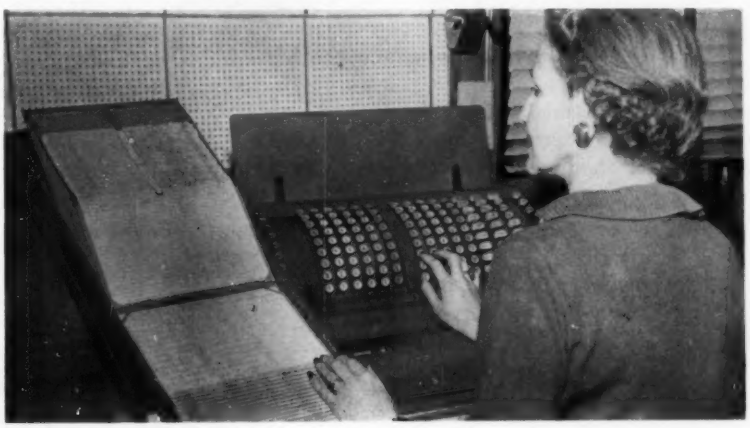
By JAMES E. HINKEL
City Manager
Monroe, N. C.

A CHANGE in tools reduced our meter-reading time from 14 days to 10 days. Complete re-routing and the adoption of a new visual filing card system should trim another two days from our monthly meter reading schedule.

On April 1, 1958 we adopted the radio method of meter reading. Although complete statistical data are not yet available, we have every reason to believe the new program will be a complete success. One advantage, the saving of time, has already been mentioned. Other known advantages include the elimination of special check readings and accompanying labor and transportation cost; immediate knowledge of abnormal readings which can then be checked on the spot; increased billing speed since the billing personnel need not wait for the books; and an end to wet or smudged meter book pages.

In addition, the equipment may

. . . at the receiving end billing clerk Madge Ayscue marks down the readings and immediately computes the account.



Actual billing, here being done by Mrs. Billie Thornton on a National Cash Register machine, need not wait until meter readers bring in the books but can start as soon as the last meter listed in the card file is read.

US RUBBER GIANT ACID HOSE

Keeping water soft during a tough plant-expansion job

The chemical treatment building of the Kansas City Water Works is getting a new addition. This big job will take two years, during which time the building contractor is using a simple and economical means for conveying water-softening chemicals to the water supply.

He uses chemically-resistant U.S. Giant® Acid Hose, furnished with stainless-steel fittings.

The men find it extremely flexible and easy to handle, resistant to abrasion, impact and weather. It remains unharmed by its highly corrosive cargo—hot lime slurry, ferric sulphate, alum solution, soda ash.

U.S. Giant Acid Hose is made for either suction or discharge service, replacing metal pipe because it handles highly corrosive solutions so well.

• • •

When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

US RUBBER

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

be used to improve customer service and reduce operating costs. During non-reading periods we can accomplish this by using it for transfers, cut-offs, cut-ons, emergencies and similar activities.

In the Field

The two meter readers work together to read about 4,000 water meters and the same number of electric meters each month. Each man carries a portable Motorola walkie-talkie type radio—but no books or other equipment. Normally the men use earphones similar to a hearing aid and noise cancelling mikes that can be clipped to the harness or can hang loose by a cord. However, the telephone receiver mike and earphone could also be used when they would be more convenient.

Base Station

The base station is equipped with a desk mike that can be operated by hand at the mike or by a foot pedal whenever the billing clerk desires to contact the meter readers. We have replaced the meter books with a Remington Rand Kardex system capable of holding eight years of records for water, electric and gas use. The billing clerk can easily remove the various trays of the Kardex system and place them on the table by the radio ready for immediate use.

Reading Procedure

The readers work together, one reading the electric meter, the other the water meter. The former identifies the account by reading the last three digits of the electric meter serial number and then proceeds to read the meter. After this has been acknowledged by the billing clerk the second man reads the water meter without reference to the meter number. The clerk also acknowledges this reading. In the meantime the electric meter reader is moving ahead to the next meter to take the reading there.

Immediate Check

The billing clerk records the readings, checks for abnormal use, and makes the computations while the readers proceed to the next location. Any unusual readings can be reviewed immediately by radioing back to the readers for an on-the-spot check.

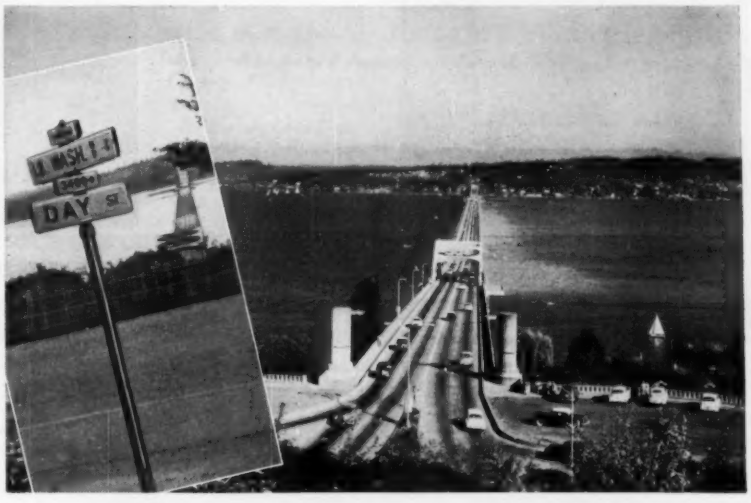
In the near future Monroe will also have a natural gas system. The same two men will read the gas meters on their regular rounds, and these will be billed at the same time as the water and electricity bills are sent out.

With less time required for meter reading the two men are free to do other work. One is being trained as a sewage treatment plant operator and electric meter tester, while the other takes over the servicing and the repair of the small water meters.

Monroe has a population of about 12,500 persons and occupies an area of approximately 6 square miles. The city extends 4.2 miles at the point of its greatest length and it is 2.7 miles at the point of its greatest width.

Area

The terrain is flat to slightly rolling and the most distant meter is about 3.6 miles from the base station. We operate on a frequency of 154.5 mc and so far have experienced very little difficulty in radio transmission.



ANCHORED "FLOATING BRIDGE"

On a unique floating bridge, traffic swiftly crosses Seattle's beautiful Lake Washington. Twenty-five huge concrete sections comprise the "float," each held in place by two sixty-five ton anchors. Nearly two miles long, it is the largest thing afloat.

In many interesting locations you'll find *FERRO* signs . . . visible by day or by night; permanent porcelain enamel fused on finest steel. Fully embossed.

***FERRO* signs are manufactured by Ferro Enameling Company, only in its own factory. Processing, embossing and porcelain enameling are carefully and completely performed under one roof, to produce an entirely reliable and uniform sign.**

On any street, road or highway, *FERRO is the sign of good government.*

FREE BOOKLET

There are centuries of difference between genuine *porcelain enamel* and "baked," "paint" or other substitute "enamels." *Genuine porcelain enamel* lasts for centuries; won't "weather," won't fade. Get the facts. Write for free illustrated leaflet and with complete details. TODAY, fill in the coupon, paste on a postcard and mail.

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1100 FIFTY-SEVENTH AVENUE
OAKLAND 21, CALIFORNIA

Please send me free leaflet and other information about your porcelain enamel signs.

*Name*_____

*Title*_____

*Office or Dept.*_____

*Street*_____

*City*_____ *Zone*____ *State*____

BAUGHMAN SPREAD-MOBILE

the Spreader that's Better ...for ice control Because...

1. IT OFFERS COMPLETE HYDRAULIC CONTROL.

Speed of discharge from Drag Chain Body Conveyor to Positive Drag Chain Cross Feeder is controlled by hydraulic motor. Second hydraulic motor controls speed of distribution, and width of spread.

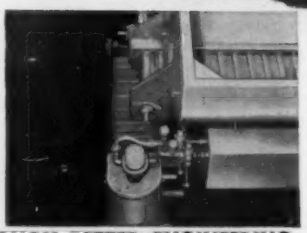
2. EXCLUSIVE "CENTER-SPRED" DESIGN.

Permits spread in front of all four wheels; improves traction, visibility and pattern.

3. ONE-MAN CAB CONTROL.

Width of spread, amount of spread, starting, stopping—all are at driver's finger tips. Driver also controls "Safety Baffle" which dampens spread when approaching pedestrians or cars.

WRITE for illustrated Brochure A-408-B.



New positive drag chain cross feeder, coordinated with main body drag chain conveyor, assures positive flow of material to side mounted distributor.

BETTER SERVICE THROUGH BETTER ENGINEERING
SERVICE AND PARTS FROM 200 SERVICE BRANCHES

BAUGHMAN

BAUGHMAN MANUFACTURING COMPANY, INC.

212 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS

DESTINATION: TOMORROW!

TODAY THE E/4 SHOULDER HOLIDAY DETECTOR AND THE E/P PULSE TYPE DETECTOR FOR DAMP CLIMATES ARE ANSWERING THE PIPELINER'S NEED FOR A DEPENDABLE, FULLY PORTABLE, GENERAL PURPOSE ELECTRICAL INSPECTION INSTRUMENT.

BOTH MODELS CAN BE USED FOR A FULL DAY WITHOUT RECHARGING THE BATTERY. ALL WRAPPED SURFACES INCLUDING PIPE CAN BE QUICKLY AND ACCURATELY INSPECTED FOR VOIDS, PINHOLES, BREAKS, SCRATCHES AND BURNED OR COKED SPOTS.

TOMORROW THESE SAME DETECTORS WILL BE USED IN THE INSPECTION OF TUBING ON OUTER SPACE ROCKETS. FOR TINKER & RASOR DETECTORS ARE DESIGNED FOR THE FUTURE.

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Electronic Detectors for every Industry

TINKER & RASOR

417 AGOSTINO ROAD, P. O. BOX 281, SAN GABRIEL CALIFORNIA

How Best to lay down a perfect Stripe with our New #458 Striping Machine. ***(Here Illustrated)***

Price complete as shown with 15 gallon Enamel Tank $150.00 Plus the shoe.

2" Shoe	$15.00	4" Shoe	$20.00
3" Shoe	$17.50	5" Shoe	$22.50
	6" Shoe $25.00		

All Rolling Surfaces—Perfectly Ground. All Size Shoes Interchangeable without loosening or tightening a bolt or nut.

The #458 Fence Painter Striping Unit is the Best, Simplest, most complete, and flexible Striper made at any price.

Write us NOW for your free copy of our 1959 Fence Painter Products catalogue.

FencPainteR Division

4911 South Racine Avenue, Chicago 9 Illinois

A Small City Can Mechanize Its Financial Procedures

By GERALD J. LONERGAN
City Comptroller
Grosse Pointe Woods, Mich.

AFTER once having had the pleasure of seeing a smooth-running accounting operation which has been completely mechanized, any consideration of returning to older methods would immediately bring to mind a great number of disadvantages. The primary requirements of any municipal accounting system are that it must make it possible:

- to show that legal provisions have been complied with, and
- to reflect the financial condition and financial operations of the municipality.

Consider the actual volume of operations required for a utility with only 5,000 customers, billed quarterly without the aid of a billing machine. Each of the 20,000 bills rendered annually would require the following operations:

1. Recording meter readings on individual customer record cards
2. Computation of consumption from present and previous meter readings
3. Posting of consumption to individual customer record cards
4. Computation of charges from consumption
5. Posting charges to individual customer record cards
6. Computation of account balances
7. Posting account balance to individual customer record cards
8. Entry of consumption to customer bill
9. Entry of charges to customer bill
10. Totaling of charges for posting to control accounts
11. Posting of collections to individual customer record cards
12. Establishing new individual account balances upon posting collections
13. Totaling of collections for posting to control accounts

A total of 260,000 operations each year are required with each operation, a source of introduction of human error. This same billing operation when fully mechanized would reduce to the following operations:

1. Entry of meter readings to the individual customer ledger cards by machine posting. All subsequent billing operations would be performed mechanically with automatic total accrual and proof of posting accuracy.
2. Entry of collections to individual customer record cards by machine. All subsequent operations would be performed mechanically with automatic accrual of totals.

Through mechanization, a reduction of 220,000 operations can be accomplished and a major source of errors eliminated. Practical applications of accounting machines are by no means limited to utilities, but apply to the following:

1. Tax and Assessment Roll Preparation
2. Tax billing
3. Appropriation ledger accounting
4. Revenue ledger accounting
5. General ledger accounting
6. Payroll accounting
7. Subsidiary ledger accounting

The centralization of all accounting operations in many smaller cities will produce a sufficient volume of work to warrant mechanization. The conversion of the accounting system to machines with a gradual step by step process will prove more advantageous than an immediate change over of all operations. Unanticipated problems in procedures may be resolved more readily and inexperienced machine operators will be better able to become proficient in each operation with a gradual transition.

Downtown Parking Profitable

Madison, Wis. earned well over $200,000 in 1957 from its off-street parking operations, after all expenses were deducted. A city-owned utility runs the 12-lot and four-floor garage which has 2,440 spaces, according to the International City Managers' Association.

EDITOR'S NOTE: This article is excerpted from *Municipal Finance*, August 1958, Vol. XXXI, No. 1, published by the Municipal Finance Officers Association, 1313 East 60th St., Chicago 37, Ill.

AMAZING NEW TRENCHING TOOL!

DITCH WITCH
9.2 HP M-3 3 SPEEDS

TRENCHES 1200-2400 FT. PER 8-HOUR DAY!

ABOUT 2c A FOOT IS USUAL TRENCH COST!

CAN PAY OUT IN 4 WEEKS, EASILY EARNS $120 A DAY!

DIGS ANY SOIL THAT CAN BE DUG BY ANY MACHINE!

FEATURES: Sealed planetary geared reduction unit eliminates excess belts, sheaves, chains and sprockets. Telescoping boom and sectional chain easily adapt unit for maximum performance on any job.

Trenches 3-8" wide, up to 4' deep; digs road crossings; gas, water, electric and telephone service lines; undercuts sidewalks; and trenches for ground wires, street lighting, traffic signals, sprinkler systems, footings, etc.

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Architect and Engineer: J. N. Pease & Company, Charlotte, N.C.

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Charlotte, N.C., chose panels of precast concrete

The Charlotte Water Department planned for the future of their rapidly growing community when they designed their new $4,000,000 Hoskins Filter Plant.

They wanted permanent architectural beauty along with practical economy. They got it by using decorative precast concrete panels attached directly to the building's concrete frame. The exposed aggregate of the panels gives a lively and pleasing combination of texture and color. In addition, the use of precast panels saved construction time. And the building will keep its fresh beauty for a lifetime.

Architects and engineers everywhere will tell you: Versatile concrete is the one building material that offers unlimited new design possibilities for structures of all kinds. Write for free literature on precast panels. (U.S. and Canada only.)

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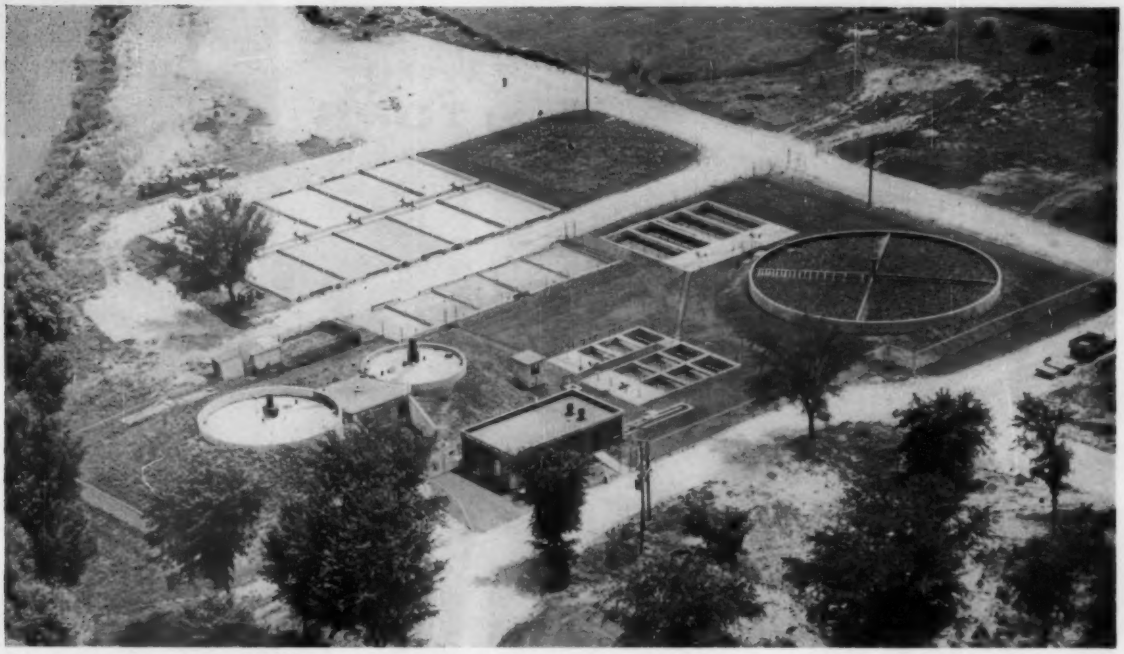


With the addition of secondary treatment, Jefferson sewage enters the Rock River with practically all the solids removed and 85% of the oxygen demand satisfied.

Jefferson, Wis. invests one-quarter-million dollars in sewerage improvements to provide . . .

Complete Treatment for a Cleaner River

By MERRALD H. HAAG
Superintendent of Streets
Jefferson, Wis.

JEFFERSON, Wis., with a population of about 4,200, constructed a primary sewage-treatment plant in 1936 to prevent pollution of the Rock River. However, at a public hearing held by the State Board of Health in November of 1950, the Committee on Water Pollution held that the primary treatment of sanitary sewage and industrial waste was not adequate to prevent pollution of the river. Investigation also showed that untreated sewage entered the river from several sources within the city.

These findings led the City Council to engage the firm of Baxter and Woodman, sanitary engineers of Crystal Lake, Ill., to determine what additional facilities were needed to conform to the order of the State Board of Health. Baxter and Woodman also designed the necessary additions to our facilities and supervised construction. The city held dedication ceremonies in July 1958.

Most of the sewage reaches the plant by gravity flow. We have two small lift stations, one serving a small residential area and the other handling flow from a local meat-processing plant.

Old Units Remodeled

After passing through a Chicago Pump Co. Comminutor, three 550-gpm American Well Works pumps, powered by 7½-hp U. S. motors, lift the sewage to the grit chamber. The old chamber was remodeled and equipped with a Rex grit-removal mechanism.

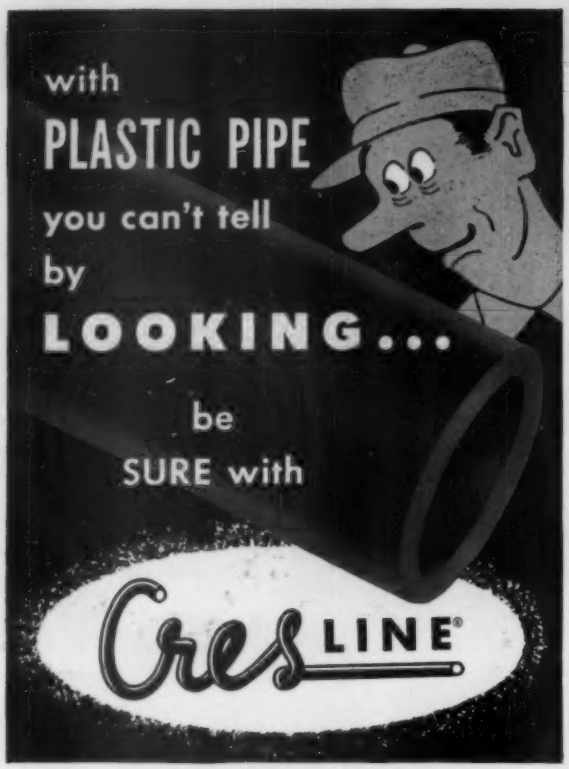
The primary tanks consist of two existing units each 12 feet wide, 40 feet long and 7¾ feet in depth and one new tank 13 feet by 38 feet by 7¾ feet. Remodeling of the old units consisted of adding a new influent channel, new scum troughs and modifying the influent end.

The final clarifiers are all new, rectangular in shape, and consist of four tanks, each 12 feet by 42 feet with a 10½-foot water depth. Both primary and secondary tanks contain Chain Belt Co. collecting equipment.

The single 80-foot-diameter trickling filter contains 6⅓ feet of filter media. It has a filter-block underdrain system and a four-arm Walker Process rotary distributor.

The primary-tank effluent flows to a recirculation storage well where it is mixed with effluent from the trickling filter. Three 600-gpm pumps take suction from this well and discharge to the trickling filter. The amount of filter effluent recirculated is controlled by means of shear gates.

We practice two-stage digestion,



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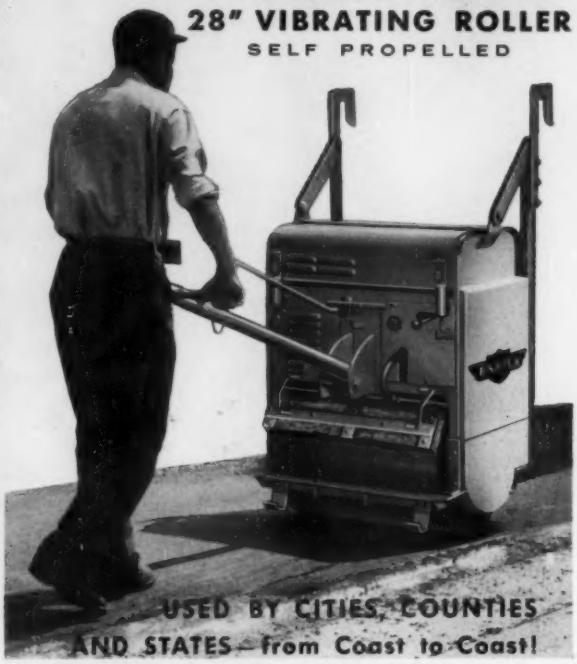
PLASTIC PIPE OF ALL KINDS FOR

900 LBS
EQUALS
8 TONS

ESSICK®

WITH ESSICK
28" VIBRATING ROLLER
SELF PROPELLED



HERE'S WHAT THEY SAY:

- **"THIS 900 LB. VIBRATING ROLLER** produces asphaltic compaction equivalent to an 8 ton deadweight roller costing 3 times as much. It doubles the output of our maintenance crews."
- **"BEING SELF PROPELLED** it is easily operated....rapid expert work can be produced with little or no effort."
- **"THE CARRYING HANGERS** (patent pending) for tail gate attachment provides the most convenient and lowest cost haulage we have ever experienced in our paving maintenance."

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(PAT. PENDING)

ESSICK MANUFACTURING CO.
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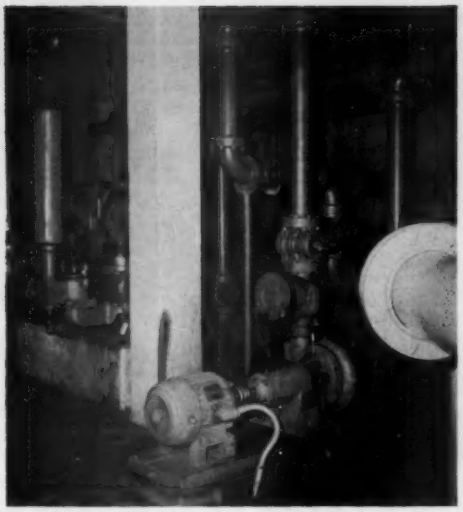
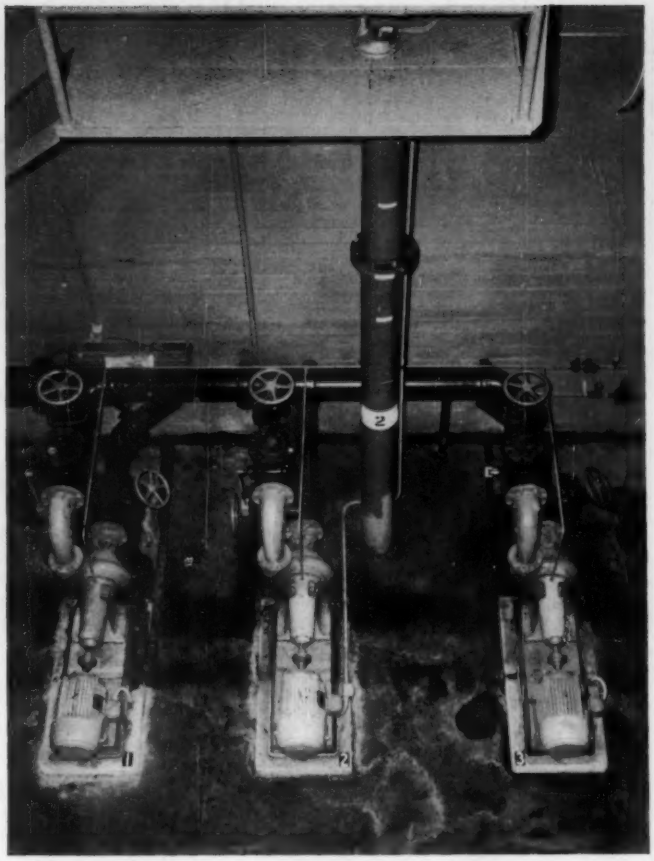
850 WOODRUFF LANE, ELIZABETH, NEW JERSEY
AFFILIATED WITH THE T. L. SMITH COMPANY, MILWAUKEE, WISC.



The digester-control building housed the raw sludge pump (rear), recirculation pump, and the heat exchanger (not shown). Note the use of plug valves in the digester piping system.



Three pumps lift the incoming sewage to the grit chamber. Similar units supply the filter and also handle recirculation.

using the new digester for the second stage and the old digester for the first stage. The new unit has a 40-foot-diameter, a 19-foot sidewall and an 11½-foot-deep hopper. The old unit is 30 feet in diameter with a 14-foot sidewall and a 7½-foot-deep hopper. Both are equipped with floating covers, PFT gas equipment, and are heated by means of a Pacific Flush Tank Co. gas- and oil-fired heat exchanger.

Sludge Pumps

A single 3-hp Marlow sludge pump transfers sludge from the settling-tank hoppers to the digesters. We also have a 3-hp centrifugal pump to transfer sludge from one digester to the other, from the digesters to the sludge-drying beds, and also for sludge recirculation. Sludge also flows to the drying beds by gravity.

Two Rockwell meters measure gas production and use. Digester piping contains ACF plug valves. Gate and check valves used in the rest of the plant are Traverse City units.

For sludge drying we kept the five old drying beds, each 20 feet by 30 feet in size, and added 10 new beds, each 24 feet by 40 feet. The new beds have 4-inch vitrified-tile underdrains covered with 8 inches of gravel and 9 inches of sand. We plan to acquire a 1,000-gallon tank truck to haul liquid sludge to nearby farms.

An indicating, recording and totalizing instrument, made by Builders-Providence, Division of B-I-F Industries, Inc., measures the incoming sewage. Automatic Control Co. float-type controls govern raw-water pump operation. Switch-panel and motor controls are by Square D Company of Milwaukee.

New Lift Station

A new lift station to serve the meat-processing plant cost $13,746. The low bid for the plant additions amounted to $251,808. To pay for these contracts plus some sewer construction the city issued sewer revenue bonds totaling $300,000 at a net interest rate of 3.967%. These are being amortized by means of a sewer service charge equal to 100% of the water bills.

Costs Shared

The city entered into agreements with the meat packing firm, a religious institution, and the County Home and Hospital to pay a portion of the costs of construction and plant operation amounting to 32.2% of the total costs. The religious and county institutions are located just outside the corporate limits of Jefferson but are served by the sewer systems.

Our engineers designed the plant to serve a population of 5,100 plus existing industries and institutions. It was constructed under the administration of Mayors Carl J. Mueller and Robert C. Hearne. Walter Buske is chief operator.

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for schools, motels, factories and small sub-divisions

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NO OBLIGATION — WRITE DEPT. 10

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What Congress Is Doing For the Nation's Cities

URBAN RENEWAL, airports, urban planning, water supply, sewage purification, air purity, refuse disposal, all are getting legislative action in the current 86th Congress. Bills on these matters, important to the nation's urban areas, are receiving Senate and House action and are being hopefully readied for presidential approval.

Urban Renewal

Urban renewal legislation, a program with widespread grass-roots urban support, will have to find a compromise between House, Senate and Administration proposals. Principal differences in the bills are as follows:

Annual Capital Grant Authorization	
House (H.R. 2357)	$500 million (for 3 yrs.)
Senate (S. 57, passed)	$350 million (for 6 yrs.)
Administration (S. 612)	$250 million (for 3 yrs.) and $200 million (for 3 more yrs.)

The House bill also extends the low-rent housing program at 35,000 units per year until the 1949 housing authorization is exhausted. This will take about four years. The Senate bill extends existing authorization for four years. This bill will permit 35,000 units to be put under contract annually till July 1, 1963. Also, authorization for 10,000 annual units which has expired will be reactivated till July 1, 1961.

Airports

Airports also are receiving more generous attention by House and Senate bills than by the Administration. Both provide $100 million per year for four years. The Administration bill covers a similar period but authorizes $50 million a year.

More substantial grants for sewage works will be provided if H.R. 3610 and S. 805 become law. The proposals continue to authorize a 30% grant but increase the maximum for any one project from $250,000 to $500,000. They also permit each municipality in a joint sewerage program to be eligible for its share of the grants to the maximum indicated.

When this program of grants was first authorized in 1956 through legislation introduced by Congressman John A. Blatnik, it met with lukewarm support and frequent opposition from state and territorial health officers. Congressman Blatnik now finds them overwhelmingly in favor of the program and of increasing the grant maximum. He also notes that the contract awards for sewerage construction have risen from an annual average of $222 million (1952-1956) to $351 million in 1957 and $390 million in 1958.

Unemployment Construction

Some 17 bills have been introduced that would provide loans and grants for public facilities in areas of persistent unemployment. Some create a Public Works Administration and plan allotments of $90 of federal funds for each $10 of state or local money. Measures like these were passed by the last Congress but received a pocket veto.

To encourage abatement of air and water pollution, H.R. 332 would permit amortization of treatment works within 60 months for income tax purposes. No action on this bill has been taken.

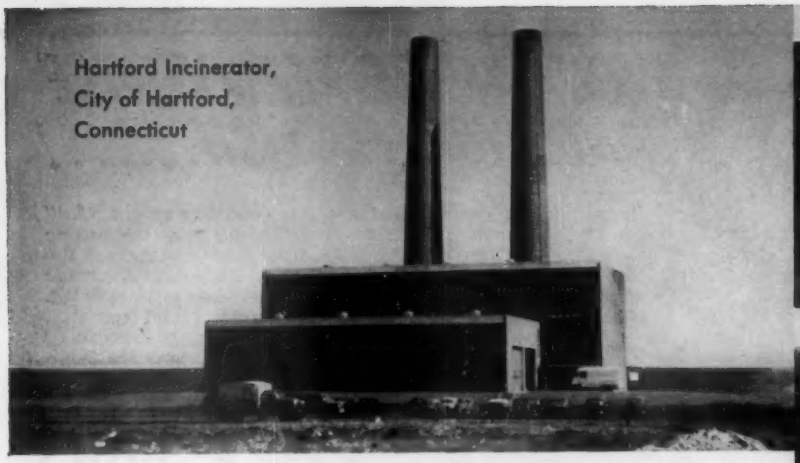
Great Lakes Diversion

The interesting proposal that another 1,000 cfs (cubic feet per second) be diverted from Lake Michigan into the Illinois Waterway probably will be authorized by Congress, despite opposition from other Great Lakes states and possible international complications.

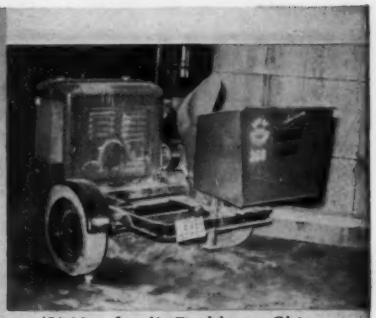
Opponents argue that the primary purpose of the increase is to relieve the Chicago Sanitary District of the cost of more purification facilities. They also warn that Canada may retaliate by diverting Columbia River water.

Interstate Compact

A new Great Lakes Basin Compact to develop water resources will be authorized by passage of S. 548 and H. R. 333. These grant permission to Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin to form such a compact and would allow participation by the provinces of Ontario and Quebec, subject to Canadian approval.



Hartford Incinerator,
City of Hartford,
Connecticut



(1) Hartford's Fitchburg Chipper

(2) Fitchburg Chipper in action

Modern Hartford disposal plant uses FITCHBURG CHIPPER

Hartford's new municipal incinerator is used to dispose of more than 400,000 pounds of waste every day. The large picture above shows this efficient, attractive plant—one of the most modern in the nation.

An important part of Hartford's up-to-date disposal program is their portable Fitchburg Chipper, which cleans up disposal jobs the incinerator cannot handle, and goes out on location for road use.

Hartford had these problems:

- *Banana Stalk Disposal*
- *Brush Disposal on New Roads*
- *Christmas Tree Disposal*
- *Road Clearance from Storm Damage*

How a Fitchburg Chipper solves these problems:

Joseph J. Coffey, Superintendent of the Hartford Incinerator, tells you in his own words how Hartford solves these problems: BANANA STALKS: "We chip 2 to 4 tons of banana stalks each week. These stalks will not burn regardless of heat in the furnaces, and we had to dump them until the Fitchburg Chipper went on duty." CHRISTMAS TREES: "During the post-Christmas season we receive many Christmas trees which we can now get rid of without the trouble of watching for burnt-down spike-like stubs which cause much trouble with the incinerator equipment."

BRUSH DISPOSAL: "Our Highway Division has used our Fitchburg Chipper to clean up the brush and branches along newly developed road areas. By chipping brush, the city saves in use of both manpower and trucking costs." ROAD CLEARANCE: "If we get hit again by hurricanes or bad wind storms, we now have an excellent piece of equipment that will enable us to readily open up the streets for emergency traffic by reducing the fallen branches to chips."

As to maintenance, Mr. Coffey says: "Our Fitchburg Chipper will pay for itself in a very short time. Maintenance, so far, is just keeping it supplied with gasoline and fully lubricated. It is easy to handle, easy to store, and very easy to use."

Get the facts! **Mail coupon for big, FREE, colorful booklet.** Specifications, operating data, explanation of exclusive Fitchburg Safety Spring, actual letters from users.

FITCHBURG ENGINEERING CORPORATION

Read what leading Fitchburg users say

LINE CLEARANCE

The Shade Tree Service Company, Webster Groves, Mo.: "Our figures show that production has been increased by a good 25% with the use of the Fitchburg Chipper. One man can operate the chipper with ease. He alone can handle as much, and more, brush in the same length of time as could two men loading brush on a platform body."

POWER COMPANY

Rockland Light and Power Company, Nyack, N. Y.: "Our men have been particularly pleased with their Fitchburg Chippers. They are rugged and reliable and the convenience of flexible, yet instant brush disposal has the advantage of promoting good public relations and still gives us efficiency."

NEW FREE BOOK
"Chip Dollars From Your Overhead"

Fitchburg Engineering Corporation
Fitchburg, Mass., Dept. AC-49

Send my Free Chipper Booklet.

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(Position or Company)

Address_____

City_____ State_____

YOU CAN BE PENNY-WISE AND SIGN-FOOLISH.....

Be cautious of signs that look like a good buy on the "flat" surface. Only embossed traffic-control signs and street-name assemblies by Miro-Flex have the durability to withstand the elements and abuse year after year. Miro-Flex signs are made on zinc-coated, Bonderized steel with baked-on enamel finish. Embossing gives them extra strength, rigidity, and legibility. A complete line of uniform signs conforming to Bureau of Public Roads standards and custom-designed signs are available. Send for free catalog and name of nearest source.

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SUPERLINER MODEL . . . REAR ENGINE DRIVE

You'll be proud of this modern, streamlined street flusher! Regularly furnished with 3 nozzles, 600 G. P. M. pump, 800 to 3000 gallon tank, mechanical controls, vertical valves. Motor enclosed in rear compartment is quickly accessible for servicing. Get literature, prices and delivery from your Etnyre dealer or write us today.

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Where you want **nothing** to grow

SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them *off*

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

dependable DOLGE
WESTPORT, CONNECTICUT

Holland's chipper makes quick work of reducing tree branches to a useful material.

Tree-Trimming By-Product Becomes a Multipurpose Material

Holland's program of converting branches to chips results in cleaner streets, lower costs and increased production

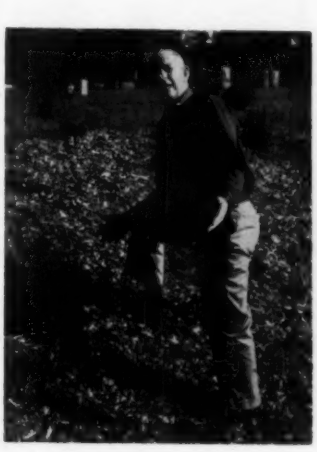
HOLLAND, Mich., home of the famous Tulip Time festival, blossoms forth each May to become a photographer's delight. The city boasts one million tulips and maintains 42,240 feet of tulip lanes. Each spring, tropical trees are moved from greenhouses to strategic locations where they are "buried" until fall. They are permanently planted in tubs, and each fall moved to the greenhouses.

Responsibility for the care of this greenery rests with Dick Smallenburg, superintendent of parks and cemeteries. Each year he sees to it that 120,000 new tulips are planted in the lanes, and that 500 cubic yards of fresh soil replaces the old soil to a depth of 12 to 14 inches.

Caring for the flowers represents a big task, but Superintendent Smallenburg's department is also responsible for maintaining 35,000 trees that line the streets and beautify the parks and cemeteries. Trimming these trees is the main job, and here mechanization plays an important role. Not long ago Smallenburg's men used to pile the tree trimmings onto a truck, haul them to a dump outside the city limits, wait until they dried out, and then burn them. Hauling costs were high, the brush was an eyesore, and the whole operation was costly.

Today only the trimming operation remains the same. The city purchased a Fitchburg Chipper to

Left:
Four to six inches of chips converted an unused field into additional parking space.



Right:
Superintendent Smallenburg explains how wood chips prevent bank erosion and also throttle weed growth.

FREE to engineers and

national's
ND-25
unclogs
sewer
lines

National's ND-25 is a chemical compound which becomes activated by water, creating considerable heat and agitation, thus removing or loosening debris and settlement in sewers and drains. ND-25, containing chemicals and metallic chips, will saponify and emulsify greases and oils and will digest roots, paper and other material containing a high percentage of cellulose. Use ND-25 to unclog all stopped up sewers and drains—just remove the manhole covers and pour in ND-25. Your troubles are over.

A PRODUCT OF NATIONAL RESEARCH

national
DISINFECTANT COMPANY
2417 Commerce, Dallas
906 S. Seventh, St. Louis

speed up the work and make a neater operation. As soon as the branches are cut, a member of the crew feeds them into the chipper where they are chewed up and the 1- to 3-inch long chips deposited automatically into the truck pulling the machine. Each load of chips is the equivalent of seven loads of brush.

With hauling time cut by 85%, the crews can spend more time at tree trimming and need not bother with burning. Eliminating brush hauling also keeps the streets cleaner.

Useful By-Products

The chips, once considered only as a by-product, have become highly valuable because of Smallenburg's ingenuity. Spread around shrubbery in the parks, they smother weeds, hold in the moisture and allow aeration of the soil. This program reduced maintenance costs and shrubbery is more vigorous when chips are applied.

In one park workmen removed sand from one area to develop a ball park some distance away. Soon the footing became loose and trucks got stuck. A few loads of chips along the truck lanes solved the problem.

This led to another idea. A city parking lot was becoming overcrowded, so Smallenburg ordered chips spread about 4-6 inches deep over some adjacent unused ground. They formed a solid, dry base on which cars could park.

The chips also prevent embankment erosion on the cemetery grounds. Several loads spread over areas subject to erosion solved the problem and throttled weed growth as well.

Interracial Housing In Desegregated Areas

INTERRACIAL communal living thrives best in new areas away from minority and ethnic concentrations. This is the finding of William Reid, Chairman of New York City Housing Authority, in testimony before the President's Commission on Civil Rights in New York City.

It is important, he said, that housing be placed in areas which are conducive to integration, and open land sites away from minority ghettos offer the best possibility for integration. Sites in fringe and peripheral areas also lend themselves for this purpose.

The operation of New York City's public housing developments on a completely integrated basis was eminently successful until after the end of World War II. The program won national recognition as a model for demonstration of racial integration, and as a guide to feasible techniques and methods. The racial occupancy of the developments remained stable. The rate of removal was extremely low, proving the willingness of families of various racial, religious, and nationality groups to live next door to each other. The acceptance of integration went beyond mere residence: in their community activities and in their tenant organization, the occupants of the developments acted on a fully integrated basis.

After the close of World War II, the situation changed and there was a gradual growth of problems. Some of the developments became occupied predominantly by Negro and Puerto Rican families. The policies which had proved so successful in advancing integration prior to 1947 are now inadequate to cope with the new problems.

One of these was the difficulty of displaced non-white families in finding private housing. Under existing laws, every family in a federally-aided public housing development must pay at least one-fifth of its income for rent. As incomes rose, many white families preferred to move rather than pay such a substantial proportion of their earnings out in rent. The minority group families, i.e., the nonwhites, remained. Knowing that they could not find adequate accommodation in private housing, they stayed and paid the one-fifth of their income required by law in rent. Thus, what had once been a well-integrated housing development now houses 40,000 Negro and 17,000 Puerto Rican families which constitute about 57% of the total 102,000 families living within the area. They are not well distributed throughout the 87 operating developments, Mr. Reid added, and are a majority in only 49—and the well-integrated character of the communities has been lost.

Mr. Reid endorsed Mayor Wagner's proposal of increased federal aid to housing and advocated giving greater flexibility to local housing authorities in setting income limits. Integrated housing was both "feasible and practical," he concluded and its demonstrated possibilities of racial amity may prove to be one of the Housing Authority's most significant achievements.

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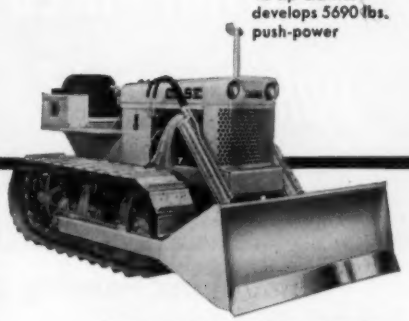

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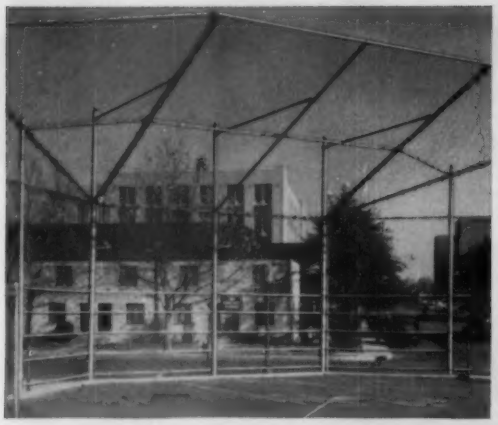

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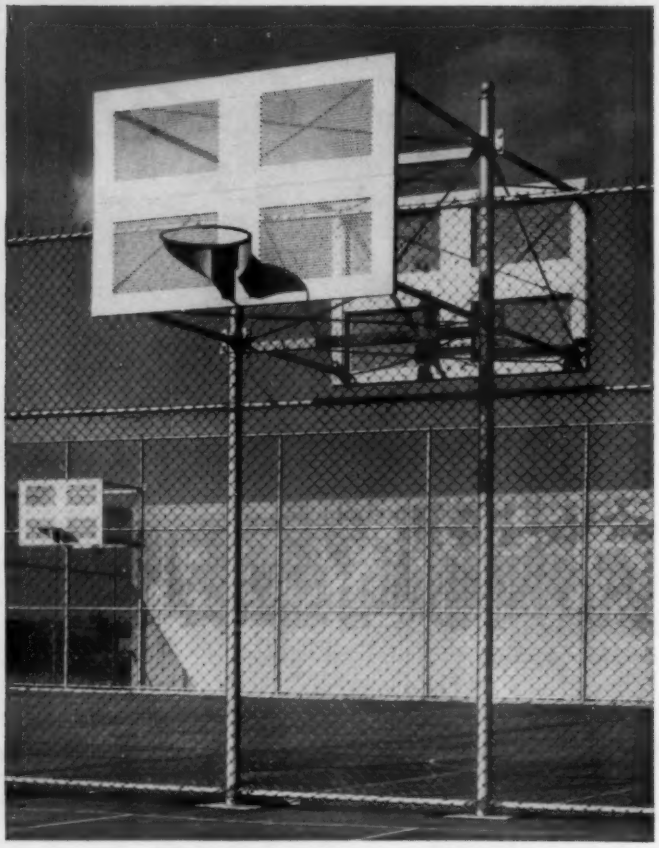

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Zoning & Planning Notes

Redevelopment—Slums and Blighted Vacant Land—Conformity with Master Plan

DELAWARE. *Randolph* v. *Wilmington Housing Authority*, 139 Atlantic (2d) 476 (Supreme (highest) Court, March 12, 1958).

This case involved the proposed redevelopment for residential purposes of an area, including over 20 city blocks east of the main business section of Wilmington, with a high percentage of dilapidated and substandard structures. This legislation was challenged by the owner of a solid building located within the blighted area.

In the opinion, the Court followed the familiar pattern of previous cases upholding redevelopment legislation—i.e., that the requirement of a public use was satisfied by clearance of the slums, and that the subsequent resale to private owners was more or less incidental.

> "But this subsequent redevelopment follows as a necessary consequence of the clearing of the area, since once the slum is cleared and the primary purpose of the act accomplished, the Authority must do something with the land."

However, the Delaware statute authorized clearance not only of built-up slums, but of blighted vacant land, with various factors of blight specified; and the Court held that "We have the very gravest doubt" as to the constitutionality of condemnation for the latter purposes. It had also been argued that the project could not conform to the general plan for the City's development, since only four parts of such a plan had been adopted, only one of which was city-wide in scope; but the Court held that this constituted sufficient compliance for the purpose of this proceeding.

> "We have examined the four parts of the Commission's plan and are satisfied that they embody a sufficiently general plan of development to comply with the statute. The purpose of requiring approval by the Planning Commission is, we think, to ensure the compliance of the plan with statutory requirement that it shall indicate its relationship to local objectives."

One judge dissented, on the usual narrow interpretation of public use and eminent domain.

Rezoning—Business District Along Major Highway

NEW JERSEY. *Bartlett* v. *Township of Middletown*, 143 Atlantic (2d) 778 (Appellate Division (intermediate court), July 7, 1958).

The long and elaborate opinion in this case was concerned with the effects of a large-scale rezoning along a main highway, in a rural township about 40 miles south of New York City, in the light of local growth and the opening of the New Jersey Garden State Parkway through the Township. The local population had doubled in about five years, with a great deal of non-residential construction along the highway in question; and after the opening of the Parkway, traffic along the highway became predominantly local or short-distance. Under the previous zoning, practically the entire highway frontage was strip-zoned for business purposes; but in 1957, after considerable planning study of the Township, a new zoning scheme was set up—with two new districts—business retail (with a minimum frontage of 100 feet, lot size of 20,000 square feet, and structure size of 1,000 square feet) and business commercial (permitting office buildings and research laboratories, with substantially larger frontage and lot size requirements). The reasoning involved changed certain areas from residence to business, apparently to provide further depth of business zoning; and it was this feature that precipitated this challenge.

In upholding the rezoning, the Court squarely rejected the old argument—unhappily resuscitated in other recent decisions—that the pre-existing zoning had some special presumption of validity.

> "Plaintiff's argument proceeds on the basis that there was a presumption running in favor of the zoning ordinance as it stood before the amendment, and this 'existing presumption' of validity had to be overcome before it could be said that there was a 'subsequent presumption' in favor of the amendatory ordinance. The short answer to this is that the presumption of validity attending the original ordinance must give way to the presumption of the correctness of the amendatory ordinance. The Legislature not only conferred upon municipalities the power to adopt zoning ordinances, but also the power to amend, change, modify or repeal them, and to change the boundaries of districts from time to time, provided that the amendatory ordinance should first have been submitted to the planning board and been approved by it."

> " . . . Physical, economic, and social conditions determine what may be the most appropriate use of particular property in a municipality. What is the most appropriate use also depends on the needs of the municipality, present and reasonably prospective, on the nature of the entire region where the municipality is located, and the use to which land in that region has been or may most advantageously be put.

> "Where a zoning ordinance may fairly be said to have as its objects the preservation of the character of the community, the maintenance of property values and the devotion of land throughout the municipality to its most appropriate use, such legislation finds ample justification under our State Constitution and the Zoning Act, and is beyond attack. It may not be insisted that such ordinance provide the ultimate zoning pattern; all that is required is that the ordinance be reasonable in the light of existing conditions and planning problems. Should changed conditions in the future prove the zoning arrangement to be no longer reasonable or workable, it may be changed."

In view of the dramatic change in the Township, involving not only rapid increase of population but a complete shift in the traffic pattern along the main road in question, the Court held that the rezoning was a carefully considered and reasonable reaction to changing conditions, and was also in accordance with a comprehensive plan; and an argument that the rezoning was in part to accommodate a proposed development was also rejected as irrelevant.

Local Business District—Supper Club

MISSOURI. *Downing* v. *City of Joplin*, 312 South Western (2d) 81 (Supreme (highest) Court, April 15, 1958).

In this case, a street in Joplin was zoned for business purposes for a substantial distance—partly (about one-half) for local business and the rest for general business and several other use districts. The local business district regulations did not permit a supper club with dancing, and a property owner wishing to develop such an establishment challenged the zoning regulations. In this challenge, a survey of the business uses of the entire street was cited.

In upholding the regulations, the Court stated that, since this zoning was part of the comprehensive zoning plan for the city, the existence of a local business district here must be considered in relation to the entire surrounding area, including the residential areas on both sides of the street in question. Moreover, it was pointed out that the more general types of business establishments—cited in the survey—existed not within the strip zoned local business, but in another part of the same street that was zoned in the less restrictive business district.

Smaller Shopping Centers Preferred

SMALL SHOPPING CENTERS receive a nod of preference from Greenlaw Grupe, owner of a Stockton, Calif. shopping center. Most of the stores are owner-operated and develop personalities of their own. Operators of the shops can make decisions on the spot and do not have to refer to the home office. Small centers generally are less costly; they have a higher parking turnover and consequently do not require so much parking area. Mr. Grupe's analysis appeared in the March issue of *Urban Land*, a publication of the Urban Land Institute, Washington, D. C.

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Annexation Granted Though Disarrangement of School District and Higher Taxes Might Result

In action against City of Columbus to enjoin annexation because of higher taxes and disarrangement of township school district, held, annexation valid. *McClintock* v. *Cain*, 142 N.E.2d 296 (Ohio C.P., Dec. 19, 1956)

Billboards— Wall Sign Not Prohibited Billboard

In application for permission to retain advertising signs on brick wall of building, held ordinance calling for removal of billboards and poster boards did not include all advertising signs such as that of applicant. *Maurice I. Grebow* v. *City of Baltimore*, 142 A.2d 554 (Md., June 17, 1958)

Bonds— Industrial Development Upheld

In action for declaratory judgment, where city issued bonds to build factory on property leased from foreign corporation, held for public purpose of improving community's living standards by attracting industry. *McConnell* v. *City of Lebanon*, 314 S.W.2d 12 (Tenn., May 2, 1958)

City Council—Lease of Property Beyond Term of Office Void

In specific performance action held under statute act of mayor and board of aldermen selling and leasing city-acquired property for period exceeding their term of office *ultra vires* and *void*. *Whitworth College* v. *City of Brookhaven*, 161 F. Supp. 775 (D. Miss., Apr. 23, 1958)

City Council— Qualification of Own Members

In action to recount councilman election votes, held statute providing third-class city common council determine members' qualifications and election, constitutional as power related to legislative functions and not exclusively judicial. *Jackson* v. *Randolph*, 311 S.W.2d 541 (Ky. App., Mar. 21, 1958)

City Employees— Disability Pay After Death Denied

In action by administratrix to recover disability compensation for deceased employee held, injured employee's right to recover did not survive after death due to cause unconnected with employment. *Rose* v. *City of Bristol*, 315 S.W.2d 237 (Tenn., June 6, 1958)

City Employees—Overtime Pay— Charter Amendment Invalid

In class action by civil service employees for collection of overtime pay, held charter amendment allowing overtime pay invalid when recommendations required to come from established comprehensive civil service commission. *Abernathy* v. *City of St. Louis*, 313 S.W.2d 717 (Mo., Div. 1, June 9, 1958)

City Employees— Initiative and Referendum Do Not Apply to Salaries

Setting salaries for Provo City policemen and firemen is not proper subject of initiative or referendum. *Shriver* v. *Bench*, 313 P.2d 475 (Utah, July 9, 1957)

City Officers—Wife of— Salary Paid to Recovered

In action to recover excess salary paid by former clerk to his wife in amount disproportionate to services rendered in issuing marriage and automobile licenses, held, recovery allowed. *Greenup County* v. *Millis*, 303 S.W.2d 898 (Ky., June 21, 1957)

City Officers—Liable for Preventing Electric Services

In action to recover damages for wrongful prevention of electric service at residence, held complaint stated cause of action for damages against city officers in individual capacities. *Armstrong* v. *City of Belmont*, 322 P.2d 999 (Cal. App., Mar. 25, 1958)

City Property— Transfer to County Upheld

Where petition to decide whether city-owned land needed by county or excess for city's foreseeable needs and court held excess, taxpayer lacked standing. *In re City of Bellingham*, 326 P.2d 741 (Wash. Dept. 1, June 16, 1958)

Concealed Weapons Ordinance Conflict with Statute—Invalid

Where conviction for ordinance violation in carrying concealed weapons, held city council lacked power to pass ordinance defining misdemeanor when identical crime defined as felony in state criminal code. *City of Cleveland* v. *Betts*, 148 N.E.2d 708 (Ohio, App., Mar. 13, 1958)

Condemnation— Federal of State for Bridge

Held, fact land owned by state no barrier to condemnation by United States for federal bridge. *City of Davenport* v. *Three-Fifths of an Acre of Land*, 252 F.2d 354 (7th Cir., Feb. 27, 1958)

Condemnation—Housing— Reversion on Nonuser Denied

Held, property owners not entitled to have judgment in condemnation proceedings set aside even though housing project not built and abandoned. *Arechiga* v. *Housing Authority of City of Los Angeles*, 324 P.2d 973 (Calif., App., 2nd Dist., Div. 2, Apr. 24, 1958)

Contracts—Sewer— Recovery for Extra Work

Where city inspectors changed requirements under contract as work progressed, held city liable for cost of additional work. *City of Houston* v. *L. J. Fuller, Inc.*, 311 S.W.2d 285 (Tex. Civ. App., Mar. 6, 1958)

Dogs—Shooting Roaming— City Not Liable

City not liable to dog owner for destruction of roaming dog where rabies prevention measure adopted and officers sought to catch and control dog peacefully before shooting. *Ruona* v. *City of Billings*, 323 P.2d 29 (Mont., Mar. 14, 1958)

Driveway— Refusal of for Parking Lot Upheld

In action challenging refusal of application for driveway to parking lot near fire station, held reasonable exercise of police power. *City of Miami* v. *Girtman*, 104 So.2d 62 (Fla., July 16, 1958)

Flood Damages—Clogged Culvert and Sewers—City Liable

In action against city for damages caused by overflow of surface water from negligently constructed culvert, held defect causing damage from ordinary rainfall correctable at reasonable expense and recovery had for recurring injury. *City of Ashland* v. *Kittle*, 305 S.W.2d 768 (Ky., Oct. 4, 1957)

Labor Unions—City Utility Employees—City May Not Bargain

In declaratory judgment action, held under city charter, qualifications, tenure, compensation, and working conditions of city's utility employees involved exercise of legislative powers and not a matter of bargaining and contract. *Glidewell* v. *Hughey*, 314 S.W.2d 749 (Mo., July 14, 1958)

Mayor's Removal of Housing Officers Invalid

Mayor's order removing Housing Authority Commissioners because they discharged executive director was judicial act of discretion reviewable by certiorari and removal order invalid since no showing commissioners acted in bad faith in discharging director. *Mayor of City of Jackson* v. *Thomas*, 313 S.W.2d 468 (Tenn. App., July 25, 1957)

Notice of Defect—Streets— Village Not Liable

In personal injury action resulting from defective curbing, held village not liable where defect within local law requiring prior notice of dangerous condition of street be given as condition precedent to action. *Skelly* v. *Village of Port Chester*, 174 N.Y.S.2d 562 (N. Y., Sup. Ct., App. Div., May 19, 1958)

Sunday Closing— Showroom Without Sales Violation

Business which opened showrooms on Sunday, for display of wares and solicitation of appointments with prospective customers, were guilty of prohibited labor and the conduct of a trade on Sunday, but not guilty of selling. *People* v. *Polar Vent of America*, 174 N.Y.S.2d 789 (N. Y., Nassau Cty., Sept. 26, 1957)

Taxation— Brewery Sales Held Intrastate

In proceeding to review determination of assessing business taxes on city brewery, held sale of goods in which delivery is taken by out-of-state purchaser within seller's state is a local transaction and taxed receipts no burden on interstate commerce, *Schaefer Brewing Company* v. *Gerosa*, 151 N.E.2d 845 (N. Y., June 25, 1958)

Taxes—Payment-in-lieu-of Housing Administrator May Not Deduct Street Costs

In action by city against U. S. to recover monies deducted by Public Housing Administrator from payments made to city in lieu of taxes, held government not entitled to deduct amount expended for street maintenance and street lighting within government housing project. *Mayor and Council of New Castle* v. *United States*, 162 F. Supp. 59 (D. Dela., May 7, 1958)

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Robert W. Duncan
Shorewood, Wis.

Robert J. McNutt
Southfield, Mich.

Alfred A. Dybiec
S. Fayette Twp., Pa.

Carleton E. McMullin
McAlester, Okla.

Geo. M. Hitchcock
Fernandina Bch., Fla.

B. ARNOLD, a city official of Ft. Pierce, Fla., is the new manager of Palm Beach, Fla., succeeding Jacob M. Boyd, who has resigned because of ill health.

ROBERT W. DUNCAN, assistant manager of Shorewood, Wis., has been appointed manager of that city, succeeding Charles T. Henry, who has accepted the managership at University City, Mo. Mr. Duncan has formerly been city engineer and public works director at Fond du Lac and Port Washington, Wis.

ALFRED A. DYBIEC, administrative assistant at Dormont, Pa., was recently appointed the first manager of South Fayette Twp., Pa.

FRED C. DYER, recorder-treasurer of Coos Bay, Ore., is the new manager at Empire, Ore., succeeding B. T. Van Wormer.

DAVID E. FIRESTONE, manager at Imlay City, Mich. for the past three years, was recently appointed manager of Sylvan Lake, Mich., succeeding Louis G. Barry, who has accepted the position of city administrator for the City of Essexville, Mich.

WILFRED E. FROEHLICH, of Hyattsville, Md., succeeds Joseph N. Arthur, retired, at Avalon, Pa.

MURREY W. FULLER, manager of Sidney, Nebr. since 1953, is the first manager of Richland, Wash. He was formerly manager of Madison, S. D.

I. IRVING GOLDMAN, urban renewal agency director of Rome, N. Y., was recently appointed manager of that city.

GEORGE M. HITCHCOCK, water works superintendent and engineer of Cumberland, Md., was recently appointed manager of Fernandina Beach, Fla., succeeding J. Floyd Glisson, now manager at Fort Pierce, Fla.

PHIN. HORTON, III, administrative assistant at Greensboro, N. C., has been appointed manager of Mooresville, N. C., succeeding Ridley T. Nichol, now manager at College Park, Ga.

M. G. ISBELL, recorder and judge of Bolivar, Tenn., has been appointed manager of Paris, Tenn., succeeding Philip B. Watson.

WILLIAM H. LAW, JR., intern of Poughkeepsie, N. Y., has been appointed manager of Guttenberg, Iowa, succeeding John Beckman, now manager at Centralia, Mo.

ERNEST F. LEE, manager for four years at West Columbia, Tex., has been appointed manager of La Marque, Tex., succeeding Lee E. Fettig. Mr. Lee has also served as manager at Lake Jackson and Dalhart, Tex.

C. RANDOLPH LUKENS, manager at Troy, Mich., for the past two years is the first manager of Chillicothe, Ohio. Mr. Lukens formerly served as manager at Fairborn, Ohio, for six years.

RICHARD MARSHALL, mayor of Oak Park, Mich., has been appointed manager of Madison Heights, Mich., succeeding Jack P. Sweitzer.

ROBERT A. MCGILL, a colonel in the U. S. Marine Corps, was recently appointed manager of Rialto, Calif., succeeding William H. Cunningham.

CARLETON E. MCMULLIN, administrative analyst, Corpus Christi, Tex., succeeds F. F. McCormack as manager of McAlester, Okla.

ROBERT J. MCNUTT, manager of Harper Woods, Mich. for the past three years, is the new manager at Southfield, Mich. Mr. McNutt has previously served as manager at Hazel Park, Mich.

JACK L. REYNOLDS, administrative assistant to the manager of San Antonio, Tex., was recently appointed manager of Edinburg, Tex., Mr. Reynolds succeeds Gene Catlin, who is now the manager at Brownsville, Tex.

MURRAY D. SNYDER, manager for four years at Globe, Ariz., is now manager of Grants, N. M.

WALTON R. L. TAYLOR, manager at Superior, Wis. for the past two years, is the new manager of Ogden, Utah, succeeding E. J. Allison. Mr. Taylor formerly served as manager at Hopkins, Minn., and Missoula, Mont.

NORMAN E. TUCKER, manager of Jesup, Ga., was recently appointed manager of Forest Park, Ga., succeeding G. F. Hill. He has also served as manager at Raton, N. M.

J. REG WAHL, assistant manager, Redwood City, Calif., has been appointed the first manager of Morgan Hill, Calif.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Municipal and Private Administration

. . . are more alike than most realize

IT HAS BEEN customary in the United States to make a sharp distinction between municipal and private administration. To the biased and uninformed, municipal administration is supposed to be bureaucratic, whereas private administration is businesslike. Municipal administration is political; private administration is nonpolitical. Municipal administration is characterized by red tape and inefficiency, private administration is not. Actually, these distinctions are much too sharp and distorted to fit the facts. Public administrators use the same time-proved methods employed by private administration, and many of the same skills.

While the similarities between municipal and business or corporate organizations are greater than is generally supposed, some differences, nevertheless, exist; however, I believe that these differences are in a degree rather than in kind. Both municipal and business or corporate organizations are usually based on law. Activities of a government are authorized by statute or executive order based on statutory or constitutional authority.

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quired to carry out their activities within the law. However, the duties and responsibilities of the public administrator will usually be described by law in much greater detail than those of his private counterpart, and there will usually be greater possibilities for holding him accountable for the discharge of duties in a lawful manner.

Greater Latitude

For example, a corporation ordinarily authorizes its officers and employees to make purchases for it under any procedure the Board of Directors sees fit to approve. A public purchaser, however, must satisfy numerous legal requirements in respect to advertising for bids, letting the contract to the lowest responsible bidder, authorizing the expenditures, etc. The private administrator is often given much more latitude in interpreting the relationship between his organization and the general welfare than is the public administrator. The private administrator is in business primarily to further his private ends, while the public administrator is expected to serve the public interest.

Basic Problems the Same

Whether one is studying the administration of a church, a school, a labor union or a corporation, any of the basic administrative problems will be the same.

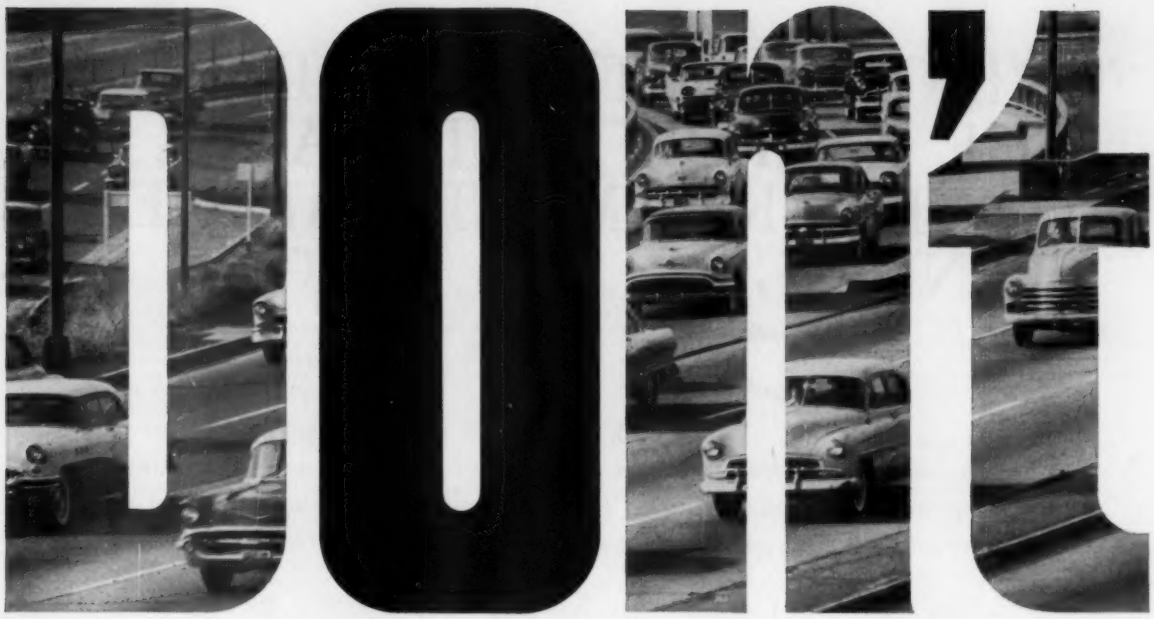
GEORGE T. MEHOLICK
City Manager
Marquette, Mich.

Cleveland Host to Nuclear Congress

COORDINATING PLANS in behalf of its thirty participating societies, the Engineers Joint Council is busily setting the stage for the 1959 Nuclear Congress, which will convene in the Cleveland (Ohio) Public Auditorium on April 5th and continue through the 10th.

Conferences

Included will be the Fifth Nuclear Engineering and Science Conference, the Seventh Atomic Energy Management Conference, the Seventh Hot Laboratories Conference and an "Atom Fair." Additional information may be had by contacting Mr. T. A. Marshall, Jr., Congress Manager, c/o Engineers Joint Council, 29 West 39th Street, New York 18.



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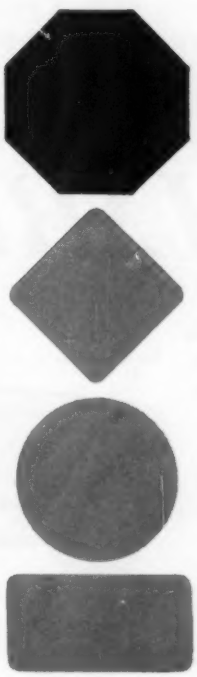

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Eastern Metals of Elmira, Inc.
Evanston, Ill.
Northwest Screenprint Co.
Grand Prairie, Tex.
Sargent-Sowell, Inc.
Grandville, Mich.
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Houston, Tex.
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Indianapolis, Ind.
Midwest Fire & Safety Equipment Co., Inc.
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John I. Nissly Co.
Little Rock, Ark.
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Metairie, La.
W & A Engineers
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The Lark by Studebaker has been selected for service by budget-minded municipal, state and county governments all across the country. The reasons for its selection are simple: The Lark provides everything needed for any civil service job (including police work) and yet drastically reduces transportation costs.

Here is how The Lark provides substantial budget economies for any municipality. *Lowers Initial Expenditure.* The Lark has the lowest initial price of any 6-passenger car with full-sized interior. *Lowers Operating Costs.* The Lark's engine provides a full measure of top performance and savings. Fuel requirements for both the L-head "6" or more responsive V-8—just low cost regular gas. *Lowers Maintenance Costs.* The Lark is specifically engineered to minimize repair downtime and is proving to have the lowest repair bills of any car in America. *Lowers Garaging Costs.* The Lark is almost 3 full feet shorter than most U. S. cars. By saving 18 square feet of valuable space, it cuts your storage cost up to $30 per car per year...and helps to relieve city traffic congestion.

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Williston, North Dakota	Miami, Florida
Phoenix, Arizona	Suffolk County, N. Y.

STUDEBAKER-PACKARD CORPORATION, FLEET DEPARTMENT, SOUTH BEND, INDIANA

Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

***April 8-10—Rochester, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Spring Meeting (Powers Hotel). Sec., Kimball Blanchard, New York Branch Sales Office, Neptune Meter Co., 2222 Jackson Avenue, Long Island City, N. Y.

April 9-11—Glendive, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section jointly with Montana Sewage and Industrial Wastes Association. Annual Meeting (Jordan Hotel). Sec.-Treas., A. W. Clarkson, c/o State Board of Health, Helena, Mont.

April 15-17—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., Rupert C. Ott Jr., Representative, Neptune Meter Co., 2818 21st St., Columbus, Nebr.

April 16-18—Phoenix, Ariz.
ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Meeting (Hiway House). Exec. Sec., Stanford I. Roth, 717 W. Cambridge Avenue, Phoenix, Ariz.

April 22-24—Pittsburg, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section jointly with Kansas Sewage and Industrial Wastes Association. Annual Meeting (Besse Hotel). Sec.-Treas., H. W. Bradley, 119 W. Cloud, Salina, Kans.

April 23-25—Vancouver, B. C.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Vancouver Hotel). Sec.-Treas., Fred D. Jones, W. 218 Maxwell Ave., Spokane 11, Wash.

April 29-May 2—Long Beach, Calif.
CALIFORNIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (LaFayette Hotel). Sec.-Treas., A. D. Leipzig, 12000 Vista Del Mar, Venice, Calif.

May 3-6—Montreal, Canada
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Queen Elizabeth Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ont.

May 5-7—West Lafayette, Ind.
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Bldg.). Exec. Sec., Don E. Bloodgood, Professor of Sanitary Engineering, Civil Engineering Bldg., Purdue Univ., Lafayette, Ind.

May 10-14—Minneapolis, Minn.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel Leamington). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

May 13-15—Washington, D. C.
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

May 14-16—Jamestown, N. Y.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Jamestown Hotel). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

May 18-21—Miami, Fla.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS Annual Convention (McAllister Hotel). Sec.-Treas., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 24-26—Gatlinberg, Tenn.
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Riverside Hotel). Exec. Sec., Herbert J. Bingham, L & C Tower, 18th Floor, Nashville, Tenn.

May 26-28—Seattle, Wash.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Olympic Hotel). Gen. Mgr., Alex Radin, 1025 Connecticut Ave., N.W., Washington 6, D. C.

June 1-5—Atlantic City, N. J.
NATIONAL FIRE PROTECTION ASSOCIATION—Annual Meeting (Dennis-Shelburne Hotel). Asst. Gen. Mgr., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

***June 3-5—Ocean City, Md.**
MARYLAND-DELAWARE SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Commander Hotel). Sec.-Treas., W. M. Bingley, 7411 N. Charles St., Baltimore, Md.

June 3-5—Wernersville, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Salem House). Sec., L. S. Morgan, Chief, Mine Drainage Section, 413 First National Bank Bldg., Greensburg, Pa.

***June 4-6—Great Falls, Mont.**
MONTANA MUNICIPAL LEAGUE. Annual Convention (Rainbow Hotel). Exec. Dir., Alfred F. Klinger, Box 456, Shelby, Mont.

***June 7-10—New York, N. Y.**
NEW YORK CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Convention (Waldorf-Astoria Hotel). Exec. Sec., Addison Mallery, 6 Elk St., Albany, N. Y.

June 7-11—Montreal, Canada
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Queen Elizabeth Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

***June 8-9—Upper Saranac Lake, N. Y.**
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Spring Meeting (Saranac Inn). Exec. Sec., R. C. Sweeney, State Dept. of Health, 55 Church St., White Plains, N. Y.

***June 10-12—Port Angeles, Wash.**
ASSOCIATION OF WASHINGTON CITIES. Annual Convention (Lee Hotel). Exec. Sec., Chester Biesen, 259 J. Allen Smith Hall, University of Washington, Seattle 5, Wash.

***June 17-19—Cincinnati, Ohio**
OHIO SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (Netherland-Hilton Hotel). Sec.-Treas., C. E. Lay, Div. of Sanitary Engineering, Ohio Dept. of Health, 101 N. High St., Columbus, Ohio.

***June 17-19—Glenwood Sprgs., Colo.**
COLORADO MUNICIPAL LEAGUE. Annual Convention (Hotel Colorado). Exec. Dir., J. T. Bell, 2300 Broadway, Boulder, Colo.

June 17-19—Memphis, Tenn.
NATIONAL CITIZENS PLANNING CONFERENCE OF THE AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Meeting (Civic Auditorium). Exec. Dir., Charles A. Phelan, Jr., 901 Union Trust Bldg., Washington 5, D. C.

***June 18-20—McCall, Idaho**
IDAHO MUNICIPAL LEAGUE. Annual Convention (Shore Lodge). Exec. Sec., Robertson W. Smith, Center Bldg., Weiser, Idaho.

June 19-23—West Berlin, Germany
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Congress on Social Services of Cities. For information, address Orin F. Nolting, International City Managers Association, 1313 E. 60th St., Chicago 37, Ill.

June 21-26—Atlantic City, N. J.
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., Robert J. Painter, 1916 Race St., Philadelphia, Pa.

June 21-26—Los Angeles, Calif.
AIR POLLUTION CONTROL ASSOCIATION. Annual Convention (Statler Hotel). Exec. Sec., Harry M. Pier, 4400 Fifth Ave., Pittsburgh 13, Pa.

***June 24-26—Minneapolis, Minn.**
CENTRAL STATES SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Pick-Nicollet Hotel). Sec.-Treas., Scott E. Linsley, P. O. Box 3598, Childs Road, St. Paul, Minn.

***June 28-July 1—Chicago, Ill.**
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Convention (Palmer House). Gen. Chairman, A. Fitzgerald, 1119 Pine St., Glenview, Ill.

***July 9-11—Biloxi, Miss.**
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Exec. Sec., Miss Evelyn McGahey, P. O. Box 254, Jackson, Miss.

July 12-15—Los Angeles, Calif.
UNITED STATES CONFERENCE OF MAYORS. Annual Meeting (Statler-Hilton Hotel). Exec. Dir., Harry R. Betters, 1707 H. St. N.W., Washington 6, D. C.

July 12-17—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION—Annual Convention (Civic Auditorium). Exec. Sec., Harry E. Jordon, American Water Works Association, 2 Park Avenue, New York, N. Y.

July 26-29—Detroit, Mich.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS Annual Conference and Products Exhibit (Statler-Hilton and Sheraton-Cadillac Hotels). Exec. Sec., Bernard F. Hillenbrand, 1001 Connecticut Ave. N.W., Washington 6, D. C.

***Aug. 29-Sept. 3—Wiesbaden, Grmy.**
INTERNATIONAL INSTITUTE OF ADMINISTRATIVE SCIENCES. Annual Congress. For information, address Robert Matteson, American Society for Public Administration, 6042 S. Kimbark Ave., Chicago, Ill.

(Continued on page 207)

BEST WAY TO SAVE MONEY IN A STREET SANITATION BUDGET...

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SAVE MANPOWER — Fast, efficient 4-wheel Mobil Sweeper can sweep and transport the load direct to the dump, saving a pickup crew and truck. Equally efficient on central dumping systems, too.

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Conventions—When and Where

(Continued from page 205)

***Aug. 31-Sept. 3—Grand Rpds., Mich.**
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pantland Hotel). Gen. Mgr., B. Richter Townsend, 232 Madison Ave., New York, N. Y.

***September 6-9—Perugia, Italy**
INTERNATIONAL FEDERATION FOR HOUSING AND PLANNING. Annual Meeting. For information, address Dennis O'Harrow, American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 7-11—San Francisco, Calif.**
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotels Fairmont and Mark Hopkins). Man. Dir., A. D. Hinckley, 1860 Broadway, New York, N. Y.

***Sept. 13-17—New York, N. Y.**
INSTITUTE OF TRAFFIC ENGINEERS. Exec. Sec., David M. Baldwin, 211 Stratchona Hall, New Haven 11, Conn.

***Sept. 20-23—Lake Placid, N. Y.**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Lake Placid Hotel). Sec., Joseph C. Knox, 73 Tremont St., Room 549, Boston 8, Mass.

Sept. 20-23—Seattle, Wash.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Olympic Hotel). Exec. Dir., Robert D. Bugher, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 24-27—Philadelphia, Pa.**
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Benjamin Franklin Hotel). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln, Aurora, Ill.

***Sept. 28-Oct. 2—Chicago, Ill.**
NATIONAL RECREATION CONGRESS. Annual Meeting (Hotel Morrison). Sec., Willard B. Stone, 8 W. 8th St., New York, N. Y.

Oct. 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N. W., Washington 16, D. C.

Oct. 11-14—Cleveland, Ohio
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Cleveland-Sheraton). Gen. Chairman, Leo Weil, Commissioner of Purchases and Supplies, Cleveland, Ohio.

***October 13-16—Houston, Texas**
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Meeting (Shamrock Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta, Ga.

Oct. 24-29—St. Louis, Mo.
INTERNATIONAL CITY MANAGER'S ASSOCIATION. Annual Convention (Chase and Park Plaza Hotels). Exec. Dir., Orin F. Nolting. 1313 E. 60th St., Chicago 37, Ill.

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Ask for FREE demonstration. See the features that make Wood's the most copied rotary mower.

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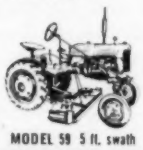
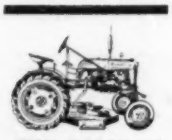


MODEL 59 5 ft. swath



MODEL 42 3-1/2 ft. swath

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9:15 Shooting Cationic Bitumuls

9:20 Cover-stone is spread

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IS YOUR BEST INSURANCE AGAINST SUDDEN SHOWERS

9:30 Flushing the finished Surface Treatment

Recently, we announced the availability of a new product:

CATIONIC BITUMULS.

We talked of adaptability to "difficult" aggregate; rapid set; resistance to early rains.

Since then, we have put this new material to many rigorous tests on actual jobs all over the country. We needed rain to show, dramatically, how Cationic Bitumuls protected new paving and surfacing against sudden showers. When we couldn't **get** rain we **made it!**

CONSTRUCTION DATA:

On a very revealing test in Long Beach, California, for instance, we used a street-flusher to simulate heavy rain. On 1,100 ft. of 72-ft. wide street pavement, various sections were blocked out to provide "control" testing. These sections were "shot" with both regular grades and Cationic Bitumuls; were covered and rolled in rapid sequence. **Within 15 minutes after application of the binder,** the street flusher (as shown above) "watered" these sections with the equivalent of a heavy rain. The sections were then opened to traffic.

RESULTS:

The sections sealed with Cationic Bitumuls retained practically all cover-stone. As expected, the regular grade of emulsified asphalt "washed-out" under this severe test and most of the stone was lost under early traffic.

Many years of research, testing and development work have gone into the production of Cationic Bitumuls. This product offers two distinct advantages to the road building and pavement maintenance industries: it coats almost **all** aggregates, even those usually regarded as "difficult"; and it extends the normal working season.

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Better Street Servicing

QUALITY IMPROVEMENT PROGRAM—*Issued by the National Bituminous Concrete Association, Land O'Lakes, Wisconsin.* 32 *pp. No charge.*

At its last meeting, the National Bituminous Concrete Association adopted a five-year program for standardizing the products and improving its quality. This little pamphlet contains the outline of this five-year program as well as much information regarding the employment of bituminous concrete in road building and street paving.

Fire Equipment

FIRE DEPARTMENT LADDERS (NFPA No. 193, 22 *pages,* 50c) and FIRE HOSE COUPLINGS (NFPA No. 194, 16 *pages,* 35c). *National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.*

New recommendations by the National Fire Protection Association on fire department ladders cover load limits, inspection and test equipment. Extensively illustrated, the material on both ground and aerial ladders is particularly useful to fire chiefs. Revisions on fire hose couplings were also adopted by the association.

New Housing for Senior Citizens

HOUSING REQUIREMENTS OF THE AGED. *The Housing Research Center, Cornell University, Ithaca, N. Y.* 1958. 123 *pp. No charge.*

This report contains a synthesis of some 60 different studies that have appeared from time to time dealing with the housing needs of our senior citizens. It is compact and comprehensive.

A New Aid for City Planners

METROPOLITAN SURVEYS—*a Digest—Prepared by Government Affairs Foundation, Inc., Public Administration Service,* 1313 *East 60th Street, Chicago* 37, *Ill.* 1959. 272 *pp.* $8.

This book is written to aid the local government faced with the complexities of metropolitan growth. It presents digests of three basic types of metropolitan surveys from the years 1923-1958 and includes general surveys made in 27 states and in the District of Columbia as well as in metropolitan areas of Canada. The 24-page introduction by Dr. Daniel R. Grant, Assistant Professor of Political Science at Vanderbilt University, is readable and authoritative as is the rest of the book.

Economics of New Industrial Plant Locations

NEW PLANT COSTS. *Ford, Bacon & Davis, Inc.,* 39 *Broadway, New York* 6, *N. Y.* 1959. 12 *pp. No charge.*

This bulletin was prepared primarily for industrial management. It discusses only the dollars-and-cents factor in plant location. Nevertheless any municipality trying to attract new industry will find the information helpful when analyzing their own community to see what attraction it offers as a new industrial plant site.

Sanitation

THE PRACTICE OF SANITATION—*By Edward S. Hopkins and Wilmer N. Schultze. The Williams & Wilkins Company, Baltimore* 2, *Md.* 1958. 487 *pp.* $8.

This book first appeared in 1951, and has since been reprinted almost every other year because of its popularity as a textbook with municipal water- and sewage-works men, consulting engineers, health officials and student sanitation engineers. Reading it one understands why.

Its authors (one is an Instructor at McCoy College, Johns Hopkins University, and the other is Assistant Commissioner of Health in the Baltimore City Health Department) have condensed 3 milleniums of sanitation theory and practice into this one readable book.

The present book has revised chapters dealing with food sanitation, milk and milk products, public water supplies, urban sewage disposal, rural sewage disposal, stream pollution, housing, air pollution and industrial sanitation, and carries a foreword by Dr. Abel Wolman, Professor of Sanitary Engineering, Johns Hopkins University.

Air Pollution Seminar

AIR-STREAM POLLUTION CONTROL—*A report issued by the American Cyanamid Company,* 30 *Rockefeller Plaza, New York* 19, *N. Y.* 1959. 64 *pp. No charge.*

This brochure contains a summary of the proceedings of a recent seminar on air-stream pollution control sponsored by the United States Public Health Service, the New Jersey Department of Health, Rutgers University, and the American Cyanamid Company. It was held at the Bound Brook plant of American Cyanamid, and was attended by more than 200 representatives of industry and government. Besides statements on national and state air pollution control programs, the subjects covered include: engineering control of air pollution, national stream pollution control, state stream pollution control, toxicity studies in stream pollution investigations, and the American Cyanamid story at Bound Brook. The last is a paper read by James C. Lamb, III, reviewing his company's particular air pollution control problems, and the steps taken for coping with it over the past 25 years. The whole 64-page brochure is packed with relevant facts, and good, hard common sense.

Problem Families

A REPORT TO THE NEW YORK HOUSING AUTHORITY—*By the Citizens' Housing and Planning Council,* 20 *West 20th Street, New York* 18, *N. Y.* 1958. 44 *pp. No charge.*

This report contains the considered opinion of 24 civic leaders on the breakdown of authority in some of New York's public housing projects. It was prepared under the chairmanship of J. D. Clarence Davies, Jr., Chairman of the Board, Citizens' Housing and Planning Council. It deals specifically with the difficulties that have arisen in city housing and are continuing to beset city housing administrators because of the incidence of large numbers of problem families found living within these housing projects. It also makes a number of specific recommendations for dealing with the problem.

The report is a thorough-going, honest analysis of a situation which must be of growing concern and it should be "must" reading for city officials charged with operating public housing projects.

Building Code

UNIFORM BUILDING CODE—1958 *Edition. Issued by the Uniform Building Code Association,* 610 *South Broadway, Los Angeles* 14, *Calif.* 1958. 404 *pp.* $10 ($8 to ICBO members).

This is a newly revised edition of a book which has come to be regarded as the "codex" of the building trade. Like its earlier predecessors, it is informative, compactly written, and well-indexed, with marginal headings to make it handy for reference.

The 1958 edition contains new chapters, sections, subsections and standards approved by the active members at the 35th annual business meeting of the International Conference of Building Officials. It should be on every city building inspector's bookshelf.

New Forms for Structural Steel

PLASTIC DESIGN OF STEEL FRAMES—*By Lynn S. Beedle, John Wiley & Sons, Inc.,* 440 *Fourth Avenue, New York* 16, *N. Y.* 1958. 405 *pp.* $13.

In this book Dr. Beedle, Research Professor of Civil Engineering at Lehigh University, Bethlehem, Pa., explains the principles and methods that are the basis of plastic design, and how they may be used in the solution of practical building-frame design problems.

In addition to presenting simple plastic theory and methods of plastic analysis, the book covers such secondary design considerations as the influence of sheer force, axial force, buckling, etc. Design procedures are suggested for proportioning building connections—procedures that are based on the plastic method of analysis as applied to such elements.

While this book is written essentially for students of structural engineering, it should prove of aid to city engineers and others in municipal engineering design departments.

Slowing Urban Blight

THE HUMAN SIDE OF URBAN RENEWAL—*By Martin Millspaugh and Gurney Breckenfield. The Barton-Gillet Company,* 32 *South Street, Baltimore* 2, *Md.* 1959. 233 *pp.* $3.50.

This is the story of four housing renewal programs in four different cities: Baltimore, Chicago, Miami, and New Orleans. It is as engrossing as a good "thriller." And like a piece of detective fiction, it has its heroes and villains. Dedicated social and civic workers are among the former, greedy landlords, and dishonest contractors have a part as the villains. The victims are the ignorant, often hard-working, but more frequently lazy, indifferent tenants.

The first part deals with the Baltimore "Pilot Plan," a rehabilitation project in which city and health officials, aided by a volunteer band of civic workers, labored from 1953 to 1955 to convert one of the worst rat-infested, unsanitary slums into a more tolerable living area with some indoor sanitation, and cleaned-up back-areas. After an initial period of success, the experiment began to lag, and the reclaimed areas lapsed back into slum. Overcrowding, increased land value, high rents, and official indifference are blamed equally for the relapse. However, all was not completely lost since the experience gained in the "Pilot Plan" helped in the more lasting rehabilitation of the Mount Royal area in midtown Baltimore as a

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semi-integrated middle-income housing area.

The second part tells the story of the Hyde-Park and Kenwood renewal project in Chicago. There, a social worker, Julia Abrahamson, and a lawyer, Julian Levi, grappled almost single-handed with avaricious landlords, indifferent city officials and an apathetic slum-tenantry to arrest housing blight. They too were only partially successful because the rehabilitated old housing was insufficient to meet the demands with new families coming in from the south moving into the already crowded area.

The Coconut Grove Plan in Miami, and the Cadiz project in New Orleans are dealt with more briefly. There, private landlords and municipal housing authorities combined to rehabilitate and rebuild slum, and often derelict, housing for the colored tenantry to the mutual benefit of all concerned.

Land Values

REAL ESTATE PRINCIPLES AND PRACTICE—*By Preston Martin. The Macmillan Company, 60 Fifth Avenue, New York 11, N. Y. 1959. 434 pp. $9.*

In this book Mr. Preston Martin draws on his own experience as a successful real estate broker, financier, and builder to explain a large number of the problems that befog the real estate picture and thereby affect municipal land use and city development. It deals with such matters as the procedure involved in subdividing or developing urban land, how a shopping center is set up, how apartment properties are appraised.

These and hundreds of other questions are treated seriously and concisely in this book. It also contains an authoritative estimate of future needs in housing and urban development. Private and city real estate administrators should find this volume an excellent guide and reference book.

Building Prices in Tennessee

BID DATA ON CURRENT MUNICIPAL PUBLIC WORKS—*By M. U. Snoderly. University of Tennessee, Box 8260, Knoxville, Tenn. 1959. 75 pp. No charge.*

This pamphlet is a compilation of bid prices received on city construction projects in Tennessee. This should be helpful to other cities in comparing construction bids and seeing whether they were in line with current practice.

Subsidized Housing in Europe

FINANCING OF HOUSING IN EUROPE. *Columbia University Press, 2960 Broadway, New York 27, N. Y. 1958. 86 pp. 80c.*

City officials in this country who have been troubled by the high costs and inadequacies of their local public housing projects, would be greatly heartened by reading this little brochure. It contains the findings of a 3-year survey into the ways and means of financing public housing in some 20 countries in Eastern and Western Europe. The survey was undertaken as a result of a resolution passed in October 1955 by the United Nations Economic and Social Council. Some of the material given herein has been gathered first hand, notably that dealing with the Western countries. The material about the Soviet dominated countries seems to be less factual, but this is presumably due to travel restrictions and not to deficiencies of the investigators.

Public housing policy and the financing of public housing are intimately related to economic and social policies and these vary widely from country to country. At one end of the scale, housing is regarded as a service to be made available at a nominal or extremely low cost; at the other, one of the primary aims is to promote owner occupation with as little financial aid as possible.

The most informative part of the report deals with the cost-wages ratio. In the United States, a dwelling, of considerably higher standard than those erected in most European countries, costs less than three times the average annual income of its purchaser, although it has to be borne in mind that the average one-family house in the United States is of light construction designed to have a much shorter life than the average European dwelling. In certain parts of Europe, a modern dwelling may cost as much as eight times the annual average earnings of a male wage-earner.

Back Street Improvement In the Nation's Capital

HOUSING CODE ENFORCEMENT—*Issued by the Department of Licenses and Inspection, Government of the District of Columbia, Washington, D. C. 1958. 23 pp.*

Between the slim pages of this little pamphlet, reporting on the progress of slum-clearance in three areas of Washington's rundown back streets, and on the plans for future projects, there is a moral and a lesson. The moral is that rundown back streets can be revived if there is enough care and thought expended on their renewal. And the lesson is that successful urban renewal demands conforcement.

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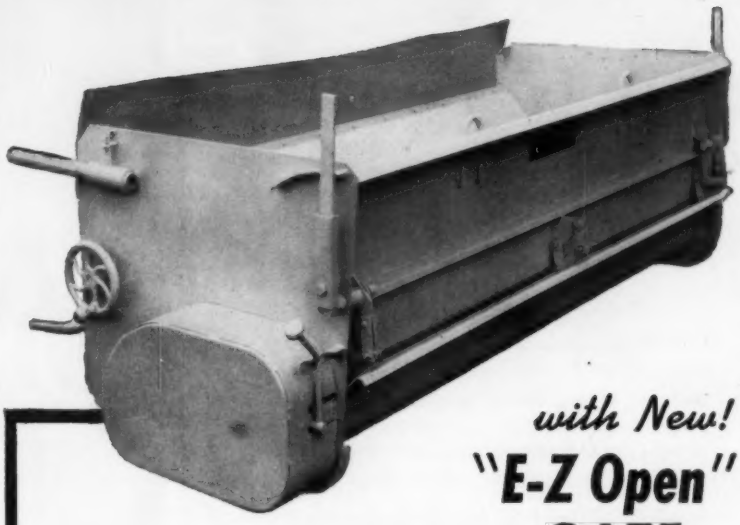

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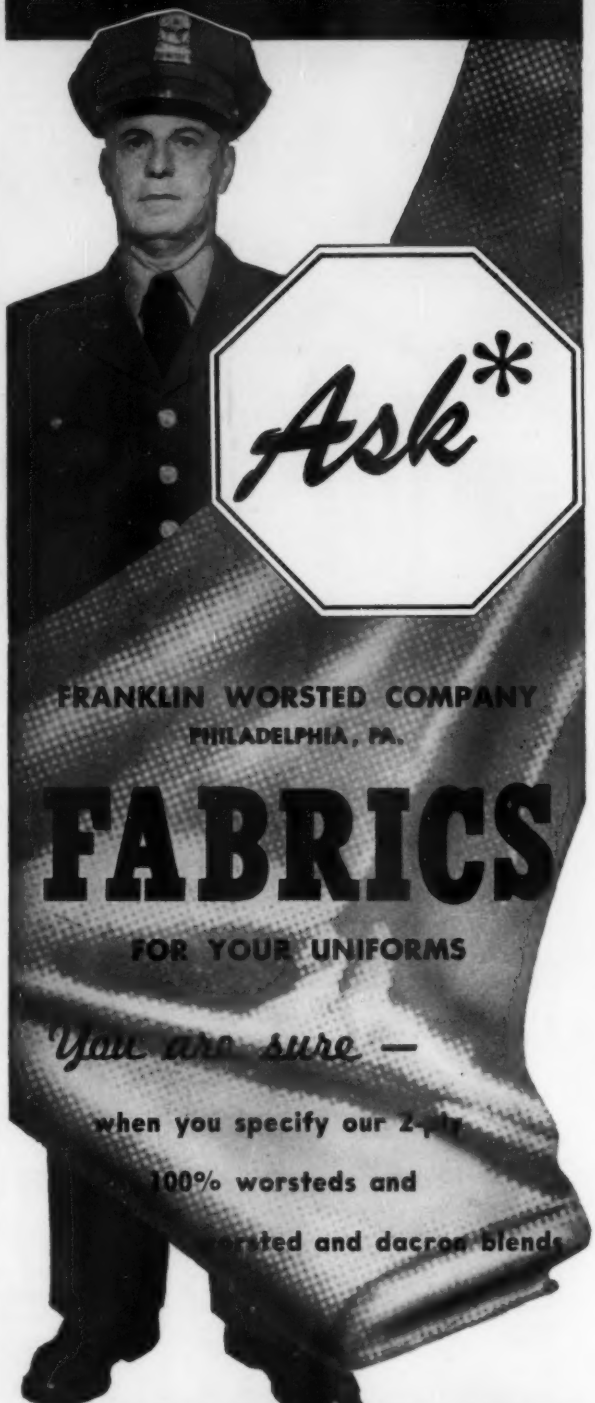

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Motor Fire Apparatus

NFPA STANDARD No. 19 *issued by the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.* 1958. 64 *pp.* 60c.

Important changes in specifications for motor fire apparatus are covered in this new edition. An appendix gives the "reason why" for many of the provisions in the specification. It was prepared by the NFPA Committee on Fire Department Equipment under the chairmanship of Chief Henry G. Thomas of the Hartford (Conn.) Fire Department.

Flood Damage

REGULATING FLOOD-PLAN DEVELOPMENT—*By Francis C. Murphy. Chicago University Press, Rosenwald Hall, Chicago 37, Ill.* 1958. 204 *pp.* $4.

CHANGE IN URBAN OCCUPANCE OF FLOOD PLAINS IN THE UNITED STATES—*By Gilbert F. White, Wesley C. Calef, James W. Hudson, Harold M. Mayer, John R. Sheaffer and Donald J. Volk. University of Chicago Press, Rosenwald Hall, Chicago 37, Ill.* 1958. 235 *pp.* $4.

Mr. Murphy holds that an ounce of prevention is worth a pound of cure when dealing with such recurring problems as flood disasters. In his readable and exceedingly informative study of the various kinds of flood-plain regulations now in existence and their actual control of river flooding, Mr. Murphy contends that, though floods are not altogether controllable, their devastations could be prevented if men today would use a little of Noah's forethought in their city plans for the future.

In the United States, the annual loss from flood damage is between 200 and 500 million dollars. A great deal of that loss is preventable, since channel constriction—construction adjacent to a river channel—buildings, highway and road bridges with earth-fill approaches, and inadequate openings for major floods, and earth fills, tend to raise the upstream level and increase the destructive force of stream velocities at the site. The increased flooding and damage would not occur were these structures not there.

Mr. Murphy's survey covers 48 states and of these, he says, Iowa and Connecticut have the best flood control laws since channel constriction is kept at a minimum and building within a possible floodway path is strictly forbidden. The manner and type of new construction developments near waterways are also strictly regulated. He suggests a well-balanced policy of engineering works, regulation of development in the pathway of flood streams, adjustment in old structures and occupance are among the three prime necessities to control floods and minimize their damage.

The second book contains a more detailed report on the studies of flood control sponsored by the Geological Department of the University of Chicago. It is more technical and covers more ground; it does not overlap but rather complements Mr. Murphy's study.

Other Reports Received

Administration & Government

PENNSYLVANIA—Comparison of Pensylvania Borough and Township Government. Mary H. Foulkrod. Bureau of Municipal Affairs, State Department of Internal Affairs, Harrisburg, Pa. 1958.

NORTH CAROLINA—Report of the Municipal Government Study Commission. Institute of Government, University of North Carolina, Chapel Hill, N. C. 1958. 37 pp.

WICHITA, KAN.—A Handbook on Local Government, by Julia Emery, Dr. Hugo Wall and Madison F. West. The University of Wichita, Wichita, Kans. 1958. 27 pp. 25c.

Air Pollution

NEW YORK-NEW JERSEY—Smoke and Air Pollution, supplemental report by Interstate Sanitation Commission, 10 Columbus Circle, New York 19, N. Y. 1959. 4 pp.

SAN MARINO, CALIF.—Eye Irritation from Solar Radiation of Organic Compounds and Nitrogen Dioxide. Report No. 23. 1958. Air Pollution Foundation, San Marino, Calif.

Annual Reports

PARK FOREST, ILL.—Progress Report. The Office of Robert A. Dinerstein, Village President, The Village of Park Forest, Ill. 1958. Unpaged.

RICHMOND, VA.—A Decade of Progress—1948-1958. City Manager's Office, City Hall, Richmond, Va. 1958. Unpaged.

Finance & Taxation

MASSACHUSETTS — Proceedings of Second Annual School for Tax Assessors. Bureau of Government Research, University of Massachusetts, Amherst. 1958.

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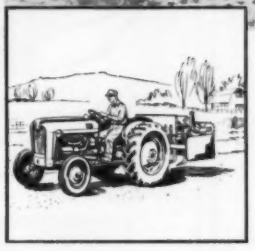

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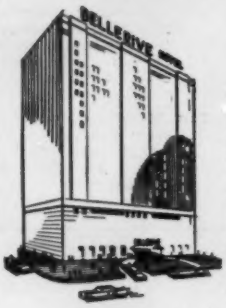

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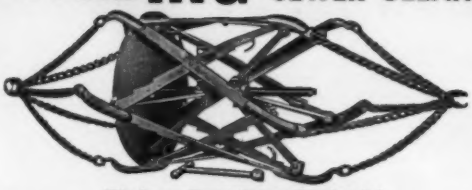

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GENERAL—Health and Safety in Transportation. IN: *Public Health Reports*, August 1958. U. S. Public Health Service. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

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BUFFALO, N. Y.—Annual Report, Buffalo Sewer Authority. 1958. City Hall.

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REPRESENTATIVE MUNICIPAL BOND ISSUES

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2/ 2/59	Eaton Rapids, Mich.	100,000	General Obligation, Water Supply System	5½	3¼	3.23
2/ 3/59	Ames, Iowa	260,000	Sewer Construction	10	2.80	
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2/ 9/59	Ambler, Pa.	335,000	General Obligation	10¾	3	2.97
2/ 9/59	Bend, Ore.	34,000	City Improvement	6	3½	
2/ 9/59	Council Bluffs, Iowa	10,000	Street Improvement Special Assessment	3¼	3¾	3.7
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2/24/59	Milford, Ohio	18,034	Sewer Special Assessment	2¾	3¼	3.22
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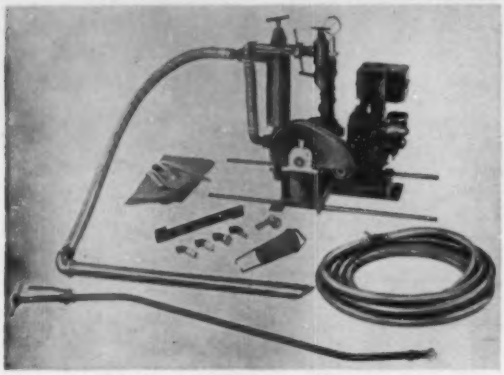

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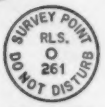

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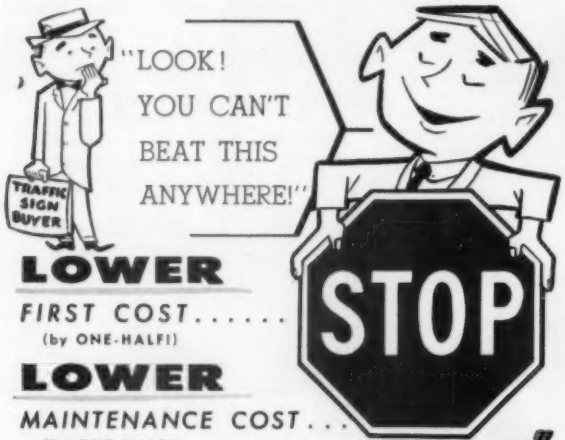

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It contains glycols used in combatting air-borne bacteria . . . effects a complete re-alignment of odor molecules . . . leaves the air odor-free and with a distinctive garden freshness.

Original equipment for all applications. You can use it indoors or outdoors to eliminate air pollution.

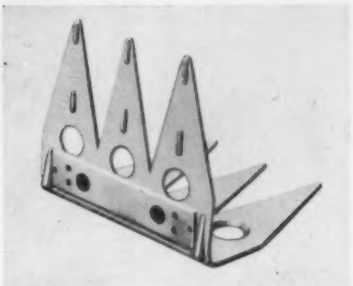
Write today for helpful free information on how Aireactor can solve *your* odor problem.

Aireactor Corp., 271 Madison Ave., New York 16

Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Distinctive Traffic Guide



This unusually shaped traffic guide effectively warns motorists against hazards.

The Line-O-Guard, announced by M-B Corp., New Holstein, Wis., alerts motorists to road hazards, protects newly painted traffic lines, channels traffic surely, safely.

Constructed of durable polyethylene plastic, it is said to bounce back to shape even when subjected to crushing force of heavy trucks. It is weather-proof, won't chip, peel or crack, and isn't harmed by grease, salt or chemicals. The spiked shape Line-O-Guard weighs 1¼ pounds, is 9½" wide, 8¼" high, and is available in bright red or brilliant yellow. Color is permanent.

A weighted base and large holes in the sides make Line-O-Guard easy to place, give it low wind resistance. Molded feet eliminate smearing of fresh paint. Unusual design allows for compact stacking without occupying much space.

For complete informaton, write M-B CORP., NEW HOLSTEIN, WIS., or you may use the Post Card on the insert following Page 52. Circle No. 704.

Gar Wood's New Load-Packer

The refuse collection unit just announced by Gar Wood Industries, Inc., Wayne, Mich., incorporates several new mechanical features, including a telescopic hoist that does not require a hoist subframe, simplified controls, an exceptionally efficient hydraulic system and a 1½-cubic-yard hopper.

According to the manufacturer, the Load-Packer 600 has the fastest packing cycle in the industry. Once the unit's 1½-cubic-yard capacity hopper is filled, the cycle begins when a rotary loading panel sweeps the load into a loading position. Here the refuse is packed toward the front of the body by direct thrust compaction compressing it under tons of pressure into a voidless load. The entire cycle takes ten seconds, and actually, the hopper is ready to be reloaded after the first four seconds of the cycle. This short cycle, under automatic solenoid speed, reduces fuel consumption substantially.

A two-element hydraulic pump, designed and produced by Gar Wood, is the center of the 600's hydraulic system. All hydraulic action is performed at low hydraulic pressures, reducing wear and strain on lines up to 33% over conventional systems.

D. J. Byrd, Gar Wood's Load-Packer sales manager, states that the 600 "has been developed to carry the largest legal payload of any refuse collection unit on the market" and that it has been designed around these six major features: biggest compaction, largest legal payload, fastest packing cycle, largest hopper, lowest loading height and safest operation.

Municipalities and others concerned with refuse collection will be interested in a sound slide-film soon to be available from Gar Wood Industries and entitled "The Big Six Story." It tells all about the Load-Packer 600. For additional information, write GAR WOOD INDUSTRIES, INC., WAYNE, MICH., or use the Post Card on the insert following Page 52. Circle No. 737.

Gar Wood's Series 600 load-packer.

Massey-Ferguson Spotlights New Industrial Line

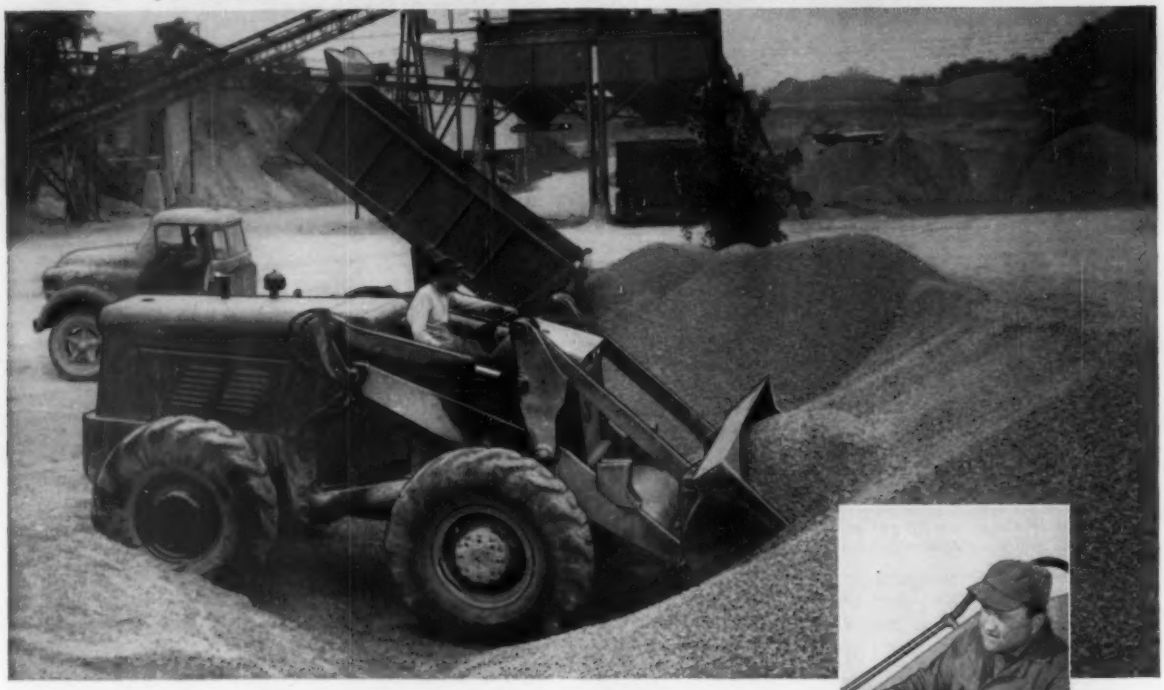
At a recent equipment show in the Detroit Coliseum, over 4,500 dealers saw six entirely new or markedly modified and improved rubber-tired tractors, backhoes and loaders join the Massey-Ferguson line.

The M-F Work Bull 204, presenting a totally new concept in utility tractors, incorporates instant no-shift change of direction, torque converter, and other features found only in big tractors.

The M-F Work Bull 406, a new design in ⅞-cubic-yard industrial tractor loaders, features instant, no-shift reversing, a torque converter, five equal speeds in either direction, and cockpit location which lets the operator see equally well both front

Dealer representatives at the showing of the new Massey-Ferguson industrial equipment line in Detroit, Mich. pay enthusiastic attention to the M-F Work Bull 406 with its ⅞-cubic-yard capacity loader bucket and Davis Model 220 backhoe. And just beyond, the M-F Work Bull 1001 front-end loader gets its share of inspection.

Ask your Allis-Chalmers dealer to show you **"And a Great Deal More"**



SINGLE-LEVER speed and direction control makes it easy for operator to work fast

If a loader operator has to move one lever for forward and reverse, and another lever to get into a higher working gear, chances are he's going to stay in low gear.

Recognizing these limitations on your achieving faster loading, Tractomotive developed Single-Lever speed and direction control to speed up the work cycle. It's on both the big TL-20 TRACTOLOADER*, and the slightly smaller TL-16.

With Single-Lever control, the operator will naturally choose his fastest possible working gear every time he shifts. He can go into second gear just as easily as first—and get there on the double. Moreover, when there's loading to be done down the street or across the city, he power-shifts right into high (road speed), and does the job in a hurry.

Let your Allis-Chalmers dealer show you how this exclusive One-Lever control of speed and direction alone will add many extra yards to your daily production.

Other TL-20 and TL-16 working advantages include: Longer Reach; Strong, Pin-Connected Planetary Axles; Extra Stability; Safe Dump Cylinder Location; Extra Hydraulic Protection; Hydraulic Torque Converter Drive; Tip-Back Bucket; "Hi-Traction" Differentials; Power Steering; Ignition Key-Type Starting; 4-Wheel Power Brakes; 6-Way Adjustable Seat; Rear-Axle Disconnect; Bucket Position Indicator.

*TRACTOLOADER is a registered Tractomotive trademark.

ALL TRACTOMOTIVE EQUIPMENT IS SOLD AND SERVICED BY YOUR ALLIS-CHALMERS DEALER

TRACTO—
a sure sign
of modern design

TRACTOMOTIVE
TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

TRACTOLOADERS • TRACTOSHOVELS • TRACTORIPPERS • TRACTOHOES • TRACTOSIDEBOOMS

and rear. Any model Davis backhoe is attachable to the unit.

The new Davis 220 Backhoe, with Hydra-slide that permits fast positioning to dig flush, increased operating pressure to 2150 psi, larger bucket cylinder for 50% faster dumping, now has greater breakaway power up to 14,000 pounds.

Davis 101 and 102 Loaders, both of which can be used with the Davis backhoe, are faster operating (operating pressure increased to 2150 psi) and 15% stronger.

The Work Bull 1001 Multi-purpose Tractor Loader has a larger, more streamlined profile; improved, more convenient cockpit with weather-protected controls and optional cab, and increased rated capacity to one cubic yard; struck capacity is ¾ cubic yard.

The Davis 99 Economy Loader has a capacity of 2,000 pounds at half height and 1,500 pounds at full height, and an operating pressure of 2150 psi but without downpressure and backhoe mounting.

For additional information on these machines, and other M-F industrial equipment, write MASSEY-FERGUSON INDUSTRIAL DIVISION, 1009 S. WEST ST., WICHITA, KANS., or you may use the Post Card on the insert following Page 52. Circle No. 736.

New Development in Photoelectric Lighting Controls

Terminal isolation in SunSwitch 5940 tubeless photoelectric street lighting controls prevents "arc-over" trouble.

By isolating the 3-prong plug terminals with a phenolic base design, the new Sunswitch 5940 tubeless photoelectric control for street lighting applications provides exceptional resistance to "arc-over" damage created from induced voltage surges.

The control fits mercury or filament design hoods and is engineered to conform to EEI-NEMA specifications. The basic control is also available with a larger cover skirt housing designed for use with existing luminaires not conforming with EEI-NEMA standards.

The cadmium sulphide cell is hermetically sealed against moisture. The unit has a built-in lightning arrestor, guarding against damage from voltage surges. Time delay of approximately one second is incorporated to prevent spurious operation due to extraneous light flashes. The control is said to be Fail-Safe; lamps will remain on in the event of component failure.

Housing is a rugged, compact, weatherproof plastic globe, guaranteed not to discolor, crack or craze. The RIPCO gasket is constructed of special long-life cork composition; eliminates vibration and seals out moisture, dirt, bugs, etc.

Additional details on the new SunSwitch 5940 Tubeless may be obtained by writing to RIPLEY COMPANY, INC., SUNSWITCH DIVISION, MIDDLETOWN, CONN., or you may use the Post Card on the insert following Page 52. Circle No. 738.

Tamper and Soil Compactor

The CM-15 tamper

The largest manufacturer of vibratory equipment, Vibro-Plus Products, Inc., has developed a tamper that eliminates the need for the traditional 4-5 man air tamp crew, or 10-ton roller, and a one-man operated vibratory soil compactor designed to reduce compaction costs by combining deep compaction with high travel speed.

The tamper, designated CM-15, weighs only 242 pounds, yet produces a 2300-pound impact with 2,350 vibrations per minute. It is self-propelled and travels up to 55 feet per minute and is ideal for compacting all granular materials such as sand, crushed stone and gravel. Two sets of shock absorbers reduce handle vibration.

Model CM20 "Terrapac", the sturdy,

Ashes, coal and other substances under foot often make solid floors in boiler rooms unsafe.

Such hazardous materials cannot accumulate on a floor made of Irving open steel grating. Debris falls right through, making floors always clean. Dangerous fumes can escape through open grating. Floors made of Irving Grating are clean, safe at all times . . . no ankle turning, tripping, slipping, hot foots. It is fireproof, self-ventilating.

Manufacturers of Riveted, Pressure-Locked, and Welded Gratings of Steel, Aluminum and other metals.

"A FITTING GRATING FOR EVERY PURPOSE"

IRVICO

IRVING SUBWAY GRATING CO., Inc.
Originators of the Grating Industry

Offices and Plants at
5030 27th St., Long Island City 1, N. Y.
1830 10th St., Oakland 23, California

MORE THAN 2000 PRESTRESSED CONCRETE TANKS IN SERVICE

Look at these features:

- No maintenance required
- 75% construction cost spent locally
- Lowest overall cost to community
- Owners never return to other types
- Longest service life of any tank

Send for Bulletin T-22

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THE PRELOAD COMPANY, INC.
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351 Jefferson, Dallas, Texas
711 Perimeter Road, Kansas City, Mo.

PRELOAD CONCRETE STRUCTURES INC.
837 Old Country Road
Westbury, Long Island, New York

HERRICK IRON WORKS
28400 Clawiter Road
Hayward, California

THE CANADA GUNITE COMPANY, LTD.
7325 Decarie Blvd.
Montreal 16, Canada

Purchasing News

heavy-duty compactor, delivers a 6600-pound impact, 2,000 times per minuute. With it, self-propelled speeds up to 75 feet per minute are possible under normal working conditions.

A simple vibratory element is mounted in the 34" x 20" base plate with the gasoline engine mounted on a platform insulated from vibration by four springs. Power is delivered through a trouble-free V-belt drive. A centrifugal clutch permits the engine to die without engaging the vibratory element. A tow bar and 2-rubber-tired wheels are provided for fast towing by truck or auto. The CM20 maneuvers close to abutments, retaining walls or piling and is ideal for backfill jobs, road patching or shoulder work and floors or foundations.

For additional information on the

Model CM-20 "Terrapac."

CM-15 tamper and the CM-20 soil compactor, write VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J., or you may use the Post Card on the insert following Page 52. Circle No. 706.

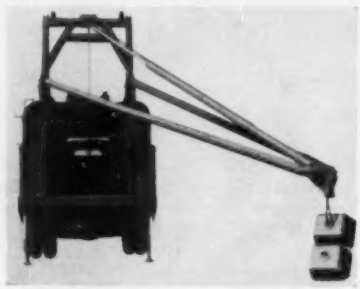
New Utility Truck

This hydraulic derrick reaches nine feet to either side from center line of truck chassis and provides sheave heights of 25, 27 and 29 feet. A simple extension of the derrick side legs allows an additional 2 feet in each of these sheave heights.

It is designed to go to the ground and apply 3,000 to 4,500 pounds down pressure on derrick-supported digger. Its lifting capacity is from 2500 pounds with sheave at ground level to 12,500 pounds at maximum elevation. It will body load 8500 pounds and handle side reach position loads up to 3500 pounds. Its safety factor in all positions is 3.

The derrick allows line trucks to park parellel to curb, reducing obstruction of busy streets. Adjustable side legs simplify digging of anchor holes with minimum of truck maneuvering.

For complete information on the new Model DHDS hydraulic derrick, write



Side, fore and up and down movement of the Model DHDS hydraulic derrick make it possible to completely plumb and pole without use of a pike.

UTILITY BODY CO., 1530 WOOD ST., OAKLAND 7, CALIF., or you may use the Post Card on the insert following Page 52. Circle No. 731.

Roller Attachment for Cat Motor Graders

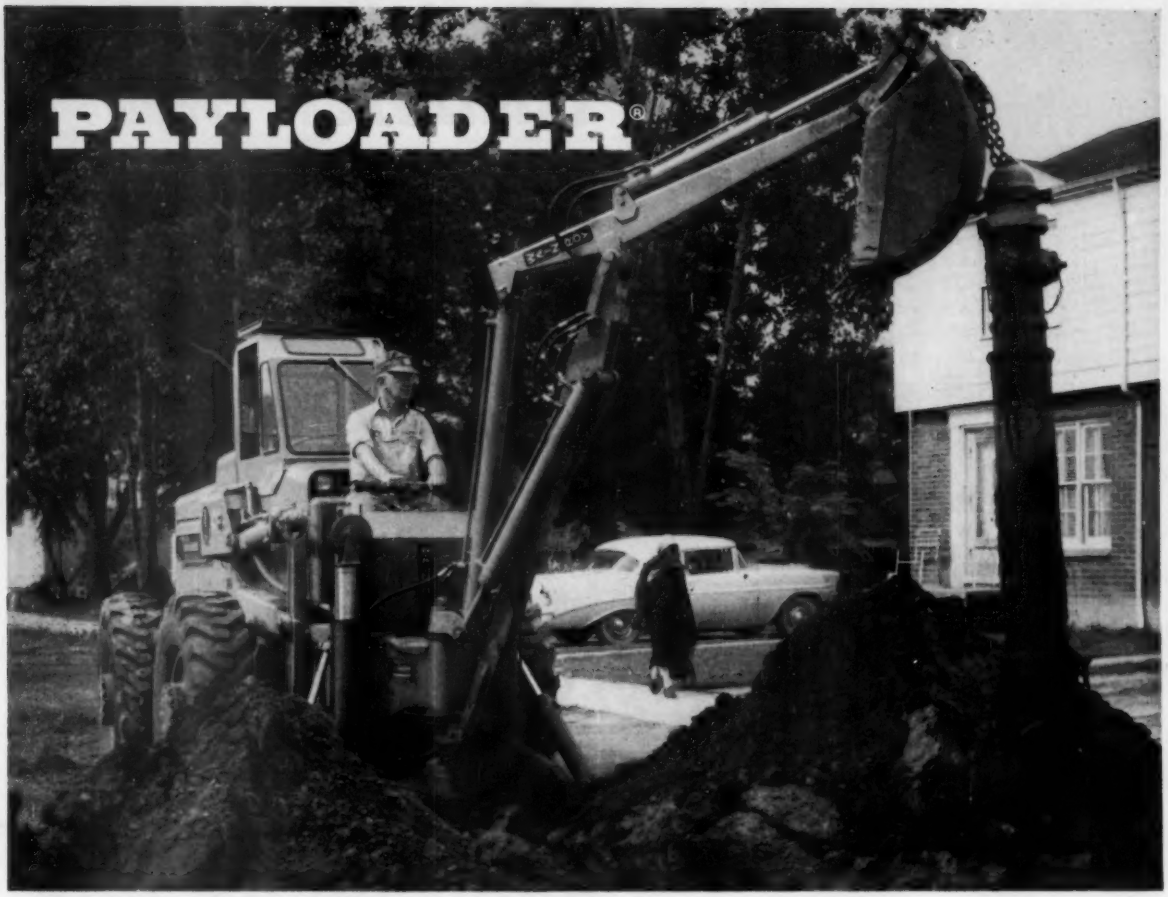
The GraderrolleR, a new road surfacing roller designed as an attachment for Caterpillar No. 12 and 112 motor graders is announced by the Martin Company, Kewanee, Ill.

The unit is raised and lowered by hydraulic power and by using the weight of the motor grader, it can exert up to 225 pounds of compaction pressure per linear inch over its 42" roll width.

To match the angle of operation of slope of the road, the roll is pivoted at the center and follows the road surface, regardless of the position of the motor grader. All operating adjustments are made from the operator's platform.

The GraderrolleR has spring tensioned

The GraderrolleR is used for all kinds of rolling when building new or repairing old roads. Here, mounted on a Caterpillar No. 12 Motor Grader, it finish-rolls a street surface.



...does the work of many machines for the City of Detroit

The City of Detroit Water Department finds new uses every day for its Model HU "PAYLOADER" tractor-shovel. With the Wain-Roy back-hoe attachment, it digs where regular trenchers cannot operate — next to trees and poles, and close along buildings — avoids a lot of hand digging. Ability of this unit to dig at right angles is also an important feature to the Department.

For a street-widening project, it set back all the hydrants — digging new holes, digging out the hydrants and lifting them from old to new locations. It lowers-in new pipe, pushes up to 40-50 ft. of 8" main through bored street-crossing holes — pays its way in many ways.

Interchanging the regular bucket and this back-hoe attachment is only a 15-minute operation right on the job. Many other attachments are available for city-owned "PAYLOADER" units such as: Drott 4-in-1 Bucket; Ram Pick-up Street Sweepers, Leaf-loaders, Black-top Spreaders, and Rotary Snow Plows; Superior Side Boom; "V" plows, blade plows and others. A "PAYLOADER" is the most useable machine any city can own, and your Hough Distributor is ready to prove it.

No. 1 in Public Service **is the title of this free literature showing the various "PAYLOADER" models and attachments, and how cities use them.**

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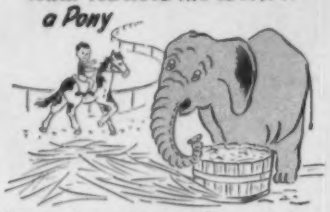
4-B-5

DONT FEED AN ELEPHANT
When You Need the Work of a Pony



There Is A Spot In Your Operations For A **LINDSAY** *Portable*
RADIAL TYPE AIR COMPRESSOR

Many times on building projects and highway jobs, as well as in municipal public works and public utilities, odd jobs come up that can be done by a small compressor. The Lindsay air compressor is useful for those odd jobs; it's built for day-in, day-out operation—year after year. That's why many public utilities, municipalities and contractors throughout the country have fleets of Lindsay radial type air compressors.

MODEL 80

LINDSAYS are . . .
- *Truly Portable*
- *Light in weight*
- *Low in original cost*
- *Low in operating costs*
- *Built for continuous operation, every day*

Lindsay builds radial type air compressors from 55 c.f.m to 125 c.f.m. Smaller models from 5 to 30 c.f.m.

P. K. LINDSAY CO., INC.
Deerfield, New Hampshire
Everett 49, Mass.

One Tractor Powers 30 Grounds Maintenance Tools!

The new, improved (now 6.6 HP!) Gravely Tractor now powers a complete, year-round maintenance system.

Cut your costs two ways: (1) Because you buy only ONE power unit that powers your choice of 30 quickly interchangeable tools; (2) Because the Gravely will do your jobs better, faster, easier!

Standardize on Gravely—as many cost-conscious cities have. Because Gravely gives you more for your money. More power at the tool through direct, all-gear drive. Simple precise control, low-cost dependable power for year-round work. Tools that will do your job most efficiently!

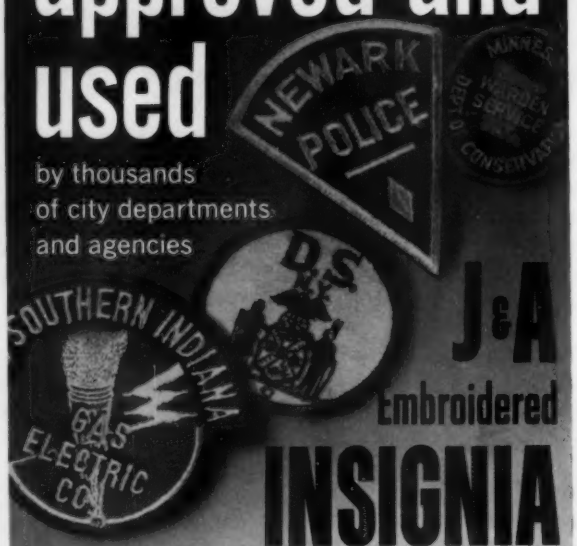
FREE CATALOG & CIRCULAR
Find out why and how Gravely does the job best. Write TODAY for "How to Cut Grounds Maintenance Cost" and Gravely Catalog!

GRAVELY TRACTORS, INC.
P.O. BOX 636-D DUNBAR, W. VA.

PERFORMANCE-PROVED SINCE 1922

approved and used

by thousands of city departments and agencies



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Meet all Official Standards:
DURABLE • COLOR-FAST • WORKMANSHIP
FREE! Sketches & quotations for special designs

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Dept. AC
932 Broadway
New York 10, N. Y.

scraper blades and a 35-gallon automatic sprinkling system to keep the asphalt from sticking to the roller. The sprinkling system automatically turns on when the roller is lowered into operating position. The hydraulic system has a hydraulic accumulator to cushion any shock directed to the roller.

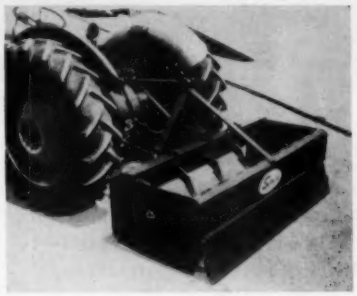
The entire roller unit weighs approximately 2,000 pounds. When not in use it can be chained in travel position so it will not hamper the other operations of the motor grader.

For further information, write MARTIN COMPANY, 620 ANDREWS AVE., KEWANEE, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 713.

Improved Soil Scraper

Smaller cities and park departments will find greatest application for this soil scraper, introduced by Servis Equipment Co., Dallas, Texas.

Aside from the conventional features requisite for fast work in spreading, leveling, and scarifying in close quarters, this improved scraper provides a new and easier latching system for scarifier teeth and a slightly wider cut on the 66-inch model. A different curve in the moldboard section insures a full load of dirt, and a full length bumper bar on the rear blade now prevents bending under severe and rough service.



For additional information, and for details on a 72-inch wide model for larger tractors, write SERVIS EQUIPMENT CO., BOX 1590, 1000 SINGLETON BLVD., DALLAS, TEXAS, or you may use the Post Card on the insert following Page 52. Circle No. 716.

New Automatic Parking System

The PARCOA DIVISION of JOHNSON FARE BOX CO., 4619 N. RAVENSWOOD AVE., CHICAGO 40, ILL., announces a new off-street coin-operated automatic parking system, aimed at providing the answer to many and varied parking problems and eliminating the need for either attendants or meters.

The automatic gate of this controlled system is operated by electronic controls which are activated by the insertion of a coin or coins into the coin slot. The coin

Parcoa's new off-street controlled parking system answers varied parking problems.

It's New!

NOW–AT LAST A MEASURING WHEEL THAT MEASURES ACCURATELY TO A FRACTION OF AN INCH!

Rolatape's amazing new Model 415 meets all your measuring needs — measuring quickly and surely over the most uneven and irregular terrain with no risk of human error. This time-saving instrument is calibrated to measure accurately in full view of operator as it is rolled along, giving measurements in inches (to ½ inch) on one side of measuring wheel, and tenths of a foot (to .5 of a foot) on the other. Sturdy and lightwight, it is equipped with automatic brake and built-in stand. Handle folds compactly. See one at your dealer's today.

MEASURES ACCURATELY ON IRREGULAR SURFACES

SEND TODAY FOR FULL DETAILS

ROLATAPE Inc. Dept. AC-4
1741 14th Street,
Santa Monica, Calif.

Send me free details on ROLATAPE:

NAME_____

FIRM_____

ADDRESS_____

CITY, STATE_____

ANY SIZE...
ANY TYPE...
Strataflo

Strainers

SPECIFY a Strataflo Strainer on your next pump job. Made in many sizes and from almost any metal. Ask your pump manufacturer. For more information, send for Bulletin 905

STRATAFLO PRODUCTS, inc. Fort Wayne, Indiana

your lawn problems take a trimming!

Simplicity WONDER-BOY 575

Only riding mower with patented* "Free Floating" action!

New 32" rotary mower . . . 33% more cutting capacity!

New 5¾ horsepower engine . . . 44% more hp!

2 speeds forward and reverse!

Turns within 4½ foot radius.

* U. S. Pat. No. 2801510

Slickest rig ever to tackle a "growing" problem! Simplicity's new WONDER-BOY trims lawns velvet-smooth at a 1⅜-acre-per-hour clip, offers unmatched maneuverability for trimming close to fences, shrubs, buildings. New 5¾ hp Briggs & Stratton engine provides 44% more power to handle big lawn jobs faster, easier, more efficiently. See WONDER-BOY today!

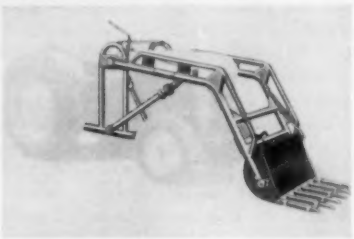
See Your Simplicity Dealer or Write SIMPLICITY MANUFACTURING CO. 5951 Spring Street, Port Washington, Wisconsin

Purchasing

collector adjusts to any rate from 5c to $1.35 and can be coin or token-operated. The coin box features a self-locking cash vault and a capacity counter to assure a parking space for all customers. Gate is closed by car passing over treadle.

For additional information, write the company, or you may use the Post Card on the insert following Page 52. Circle No. 730.

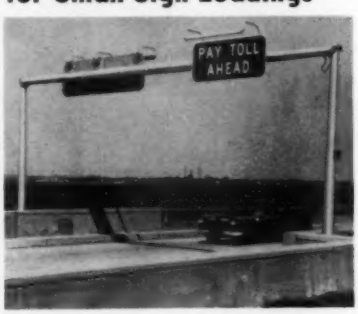
Loader for Ford, Ferguson Tractors



The Model M-601, an all-new heavy-duty loader for Ford and Ferguson tractors has a capacity to lift 1200 pounds to a height of 8½ feet (to bottom of bucket). It can be attached and detached easily without necessitating the removal of tractor lights.

The 9 cubic foot bucket (combined with gravel plate) is a full 40 inches wide and has bolted-in 11⅛-inch axle steel teeth. For additional information, write FREEMAN LOADER CORP., PERU, IND., or you may use the Post Card on the insert following Page 52. Circle No. 729.

Aluminum Sign Spans for Small Sign Loadings



Tapered aluminum sign spans on the approach to the Hampton Roads Tunnel, Hampton Roads, Va. are particularly suitable for short span widths and small sign loadings. The entire sign program was supplied by Traffic and Street Sign Co., Newark, N. J. Pfaff & Kendall, also of Newark, manufactured the tapered aluminum spans. For details, write either company, or use the Post Card on the insert following Page 52. Circle No. 718.

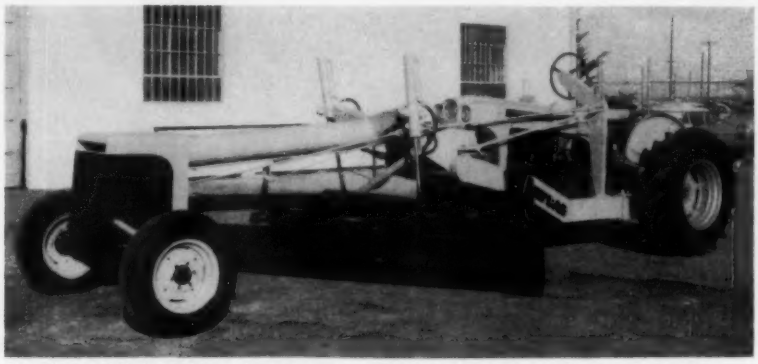
Versatile Maintaining Tool

The Lev-L-All, designed as a low-cost tool for grading, leveling, ditching and maintenance, utilizes the full power of the Ford 600, 800 and 1800 tractor series on which it is quickly and easily installed.

According to the manufacturer, on-the-job work tests confirm the Lev-L-All's ability to match the work output of the best single-purpose 50-hp tandem motor graders on its weight class; yet it offers the convenience of converting the power unit back into a regular tractor in a matter of minutes, for use with the many other Ford attachments available. Front-end stability and planing ability are said to be comparable to that usually found only in larger, more expensive units.

Ease of operation, basically due to its built-in stability, effortless steering, a minimum turning radius, convenient hydraulic controls, a fully visible blade, and ideal distribution of weight which provides traction for the use of full engine horsepower in all gears, are some Lev-L-All features.

Optional attachments that will be made available for use on the Lev-L-All include a power circle, power shift moldboard, a scarifier, 2-foot moldboard extensions, windrow eliminators and 16-inch front wheels with 6.50x16 or 7.50x16, 6-ply or 8-ply tires.



The Lev-L-All, introduced by White Star Enterprises, Inc. of Wichita, Kans., competently performs grading, leveling, ditching, and maintenance work. Attachment to Ford tractors is done quickly and easily.

The Lev-L-All is built for White Star by Consolidated Equipment Co., Inc., Wichita, Kans. Full information may be obtained by writing to WHITE STAR ENTERPRISES, INC., P. O. BOX 1052, WICHITA 1, KANS., or by using the Post Card on the insert following Page 52. Circle No. 717.

Heat Resistant Refractors Make Better Street Lights

Development of small, compact street lighting refractors, which virtually eliminate the danger of thermal breakage by having the strength to withstand the greater heat generated by high wattage lamps, is in line with the trend toward lamps of increased wattage and higher levels of illumination.

Corning Glass Works recently an-

IF ONE OF YOUR PROBLEMS IS

INSECT CONTROL

. . . THIS SHOULD INTEREST YOU!

. . . an insecticidal fog generator that—
- Outsells all other types in Florida and Texas
- Is in regular use at U. S. Air Force Bases
- Weighs just 100 lbs., yet does work of much heavier machines

Dyna-Fog

Simple to use . . .
Potently effective
Widely sold . . .

Dyna-Fog merits your investigation.

$1295.00

EXTRA!
Our "Machine Loan" Program provides "sub" unit, should yours ever be out of action for servicing.

NOTE: Ask about our 19 lb. Dyna-Fog Jr. for that specific insecticidal fogging job.

Write for Complete Information!

Curtis

AUTOMOTIVE DEVICES, INC. P.O. Box 297-B
Dyna Products Division Westfield, Indiana

NOW!

a NEW solid-color PVC

POLY-CONE*

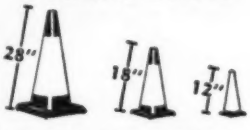
tough, durable, no seams, will not CRACK, TEAR or BREAK!

This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, *most durable cone on the market.* Outlasts ordinary cone many times . . . . without upkeep!

**Polyvinyl-chloride*

2191

SAFE-T-CONE®
TRAFFIC GUIDES

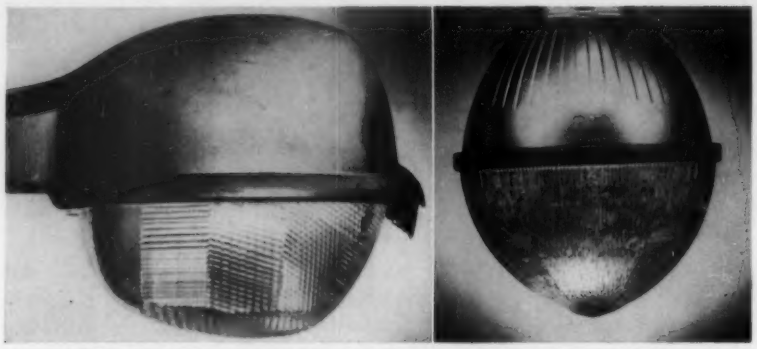


All-Rubber SAFE-T-CONES available in 3 SIZES!

Painted or Reflectorized
ALL RUBBER
Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

Plastic or All-Rubber
FLUORESCENT
New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by Radiator Specialty Co.
Charlotte, N. C.



Street lighting refractors of heat-resistant Pyrex Brand glass now available from Corning Glass Works include the specially designed refractors for Westinghouse's OV-35 series for clear mercury lamps and color-corrected mercury lamps (left) and for the GE "R" IES Type III incandescent optical assembly (right).

nounced that it is making specially designed refractors of Pyrex Brand glass for both the General Electric Co. and the Westinghouse Electric Corp. The GE #500 refractor for its "R" IES Type III incandescent optical assembly is now being made of high-strength low expansion borosilicate glass. The refractor is being used with lamps up to 620-watt, 10,000-lumen size.

Two different Pyrex refractors are being made by Corning for Westinghouse's OV-35 series: one for the clear mercury lamps in the 700- and 1,000-watt sizes and the other for color-corrected mercury lamps in the 400-, 700- and 1,000-watt size ranges.

CORNING GLASS WORKS produces the optically engineered refractors to meet design specifications of the lighting fixture manufacturer. For details, write the company at CORNING, N. Y., or you may use the Post Card on the insert followng Page 52. Circle No. 702.

Deepwell Turbine Pump

Important design innovations have been incorporated into the new Type G deepwell pump designed by Byron Jackson Pumps, Inc., Lawrenceburg, Ind., for widespread general application by municipalities and other primary water supply users, and available both in oil-lubricated and water-lubricated models.

In the oil-lubricated Type G series, a new, extra-long, one-piece throttle bushing serves both as a bearing and as a bypass seal. It eliminates top-case packing and prevents sand and other foreign materials from entering the bearing surfaces. Perforating leading into the bypass ports protect against inner column pressure build-up.

Collet-type impeller mountings replace the former method of using a shrink fit and set screws and makes assembly and disassembly of BJ pumps easier and faster and results in a secure positive mounting.

Also featured is a new stuffingbox assembly that eliminates the packing ring. The assembly consists of a combination bearing and tension nut that not only effects a permanent seal at the driver head but also holds the head shaft in correct running alignment.

A choice of impellers for both medium

KURB DRESSER

EDGES 80 MILES OF TURF PER DAY!

A park department official recently testified that one "Kurb-Dresser" does the work of 12 men using conventional equipment — freeing these men for other maintenance work. This rugged, tractor-drawn industrial edger can easily slice through a 4" soil build-up, or as deftly trim random grass runners, overlying curbs, sidewalks, highways, driveways, airstrips, etc. — at speeds up to 15 miles per hour.

"Kurb-Dresser" fits any three-point-hitch tractor. Blade automatically holds steady course even if tractor path deviates as much as 16 inches. Either flush-cuts or simultaneously cuts-and-troughs, on dry or wet turf. Operates with or against traffic; from street or turf areas. Non-spinning cutting blade safeguards operator and bystanders against danger from flying debris!

Whether you edge weekly, or "clean-up" only once a year, "Kurb-Dresser" pays for itself again and again. Sold nationally through leading turf-equipment distributors. Full details sent, or demonstration on request.

FREE
DEMONSTRATION,
LITERATURE,
SPECIFICATIONS,
QUOTATIONS

☐ Send detailed "Kurb-Dresser" information.
☐ Arrange a convenient demonstration.

_____ is the best time for me.

Name _____
Title _____
Firm _____
Address _____ City & State _____

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CLEBURNE, TEXAS

and high-capacity performance is offered in every Type G bowl size. The two impellers are interchangeable without alterations, permitting selection for a wide range of operation. To insure longer bowl life, meehanite metal is used in the top case, series cases and bottom case of all Type G pumps, both oil- and water-lubricated.

Stainless steel bowl shafts, bronze impellers and new venturi-type topcase, threaded on the O.D. for the outer pump column are standard with all Type G pumps, as are extra-long grease-packed bottom bearings provided with a sand cap for longer, trouble-free pump performance.

Water-lubricated models of the Type G series have fluted rubber top-case bearings that effectively by-pass sand and other foreign matter. Since water-lubricated pumps have no inner column assembly, fluted rubber bearings supported by a rugged bronze spider assembly are also employed at 10-foot sections on the pump shaft.

This model is of a 10-inch oil-lubricated Type G deep well turbine pump, designed by Byron Jackson Pumps, Inc., to handle more water with increased efficiency at lower operating costs. Cutaway drawing shows construction details of shaft, bearings, impellers and case design.

Type G pumps will be supplied with 1045 HT shafting, which carries higher horsepower loads and provides increased strength and reliability. Shafting for water-lubricated pumps has replaceable stainless steel sleeves at points of bearing contact.

Type G pumps can be driven by direct-connected electric motor, right-angle gear drive or flat-belt drive from gasoline or diesel engine. Necessary adaptations can be made to the user's specific requirements. For additional information write BYRON JACKSON PUMPS, INC., P. O. BOX 70, LAWRENCEBURG, IND., or you may use the Post Card on the insert following Page 52. Circle No. 732.

MOSQUITOES
FLIES
AND OTHER
INSECT PESTS
DESTROYED
ON
CONTACT

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TODD INSECTICIDAL FOG APPLICATOR

Lowest-Cost Space Control throughout the Community

BEST by TEST for over 14 years in Community Fly and Mosquito Programs

On the dump, over pools, in suburbs, play areas, stockyards, TIFA gets the kill every time . . . at the lowest operating and maintenance cost. TIFA rapidly covers large areas with true clean fog, penetrates smallest crevices, envelopes and destroys all insect pests. This efficiency with newest or older type insecticides, gives you a better insect control program for your community.

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Contains many features never before found in a pipe locator:

- Single turn solid metal loops cast into the fiberglas case
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- Three-position sensitivity switch on receiver plus variable gain control
- Ten transistors—7 in receiver, 3 in transmitter

Plus these other deluxe features:

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- Battery tester on receiver and transmitter
- Depth level indicator
- Adjustable drop handle
- Pulsed transmitter
- Will locate valves and pipes at greater depth and will trace pipes farther

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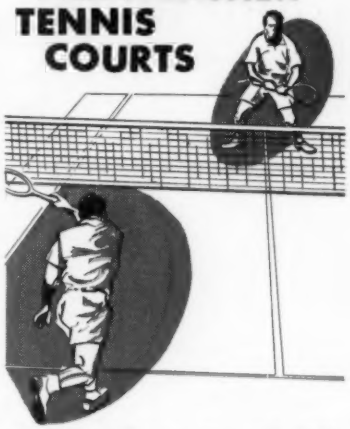

Your city will save time and avoid needless headaches by turning over the job of building or rebuilding tennis courts to our construction specialists. An all-weather surface permits maximum use of your courts. We offe ran inspection service to all parts of the United States by airplane. Write, wire or phone collect for further information on

"Tru-Bounce" Quality Courts
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Registered Professional Engineers With Tournament Tennis Experience

Western Parking Gate
in combination with hourly rated
"Parkontrol" Time-Dater-Imprinter Equipment.

Over 700 Western Parking Gates in more than 100 cities have proved that off-street parking can be handled automatically at a substantial profit. Positive control—Western Parking Gates are electrically operated to give complete flexibility, dependability and ease of operation in any city parking facility.

Key, electro-card, coin and token-operated gates, separately or in combination, provide the answer to municipal lots operated on a flat fee arrangement.

"Parkontrol" Time-Dater-Imprinter Equipment available for operations involving hourly rate and validation parking. Low labor costs, low initial equipment cost and simple installation make them a wise investment for any city.

EXCLUSIVE FEATURES—Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

WRITE TODAY for information on various parking lot control plans available for your application.

8378

WESTERN INDUSTRIES INC.

Electric Parking Gate Division

2730 West 36th Place, Chicago 32, Illinois

CANADA: Cameron, Grant Inc., 465 St. John Street, Montreal 1, Quebec

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MAXI-POWER Sewer Cleaning Unit

Note the STIFF LEGS—quickly adjustable to compensate for uneven ground.

ONE unit consists of:

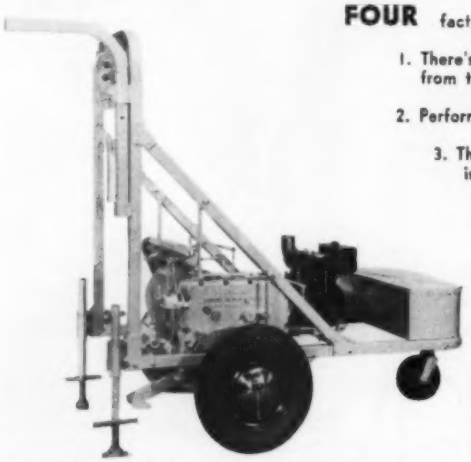
TWO machines, located at the ends of the sewer section to be cleaned.

TWO models (501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

	1st gear	2d gear	3d gear
#501	11000 lbs.	9000 lbs.	7000 lbs.
#502	15000 lbs.	12000 lbs.	9000 lbs.

FOUR facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
2. Performance is easy, quick, thorough.
3. The original full flow of the sewer is restored.
4. Each part is designed and engineered for long life.



Sewer Cleaning Brushes, Buckets, Ferrets, Flushing Bags, Rods, carried in stock for immediate delivery

Write for catalog

Turbine Sewer Machine Company

Division of

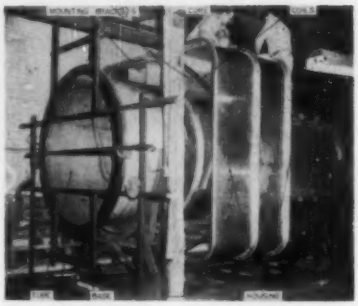
Chas. H. Stehling Co.

1303 North Fourth St.

Milwaukee 12, Wis.

Purchasing

World's Biggest Flow Meter



This 72-inch instrument is installed in the main influent tunnel of the Allegheny County Sanitary Authority sewage treatment plant at Pittsburgh, Pa. It will handle raw sewage flows of up to 350 mgd, and is said to be the world's largest magnetic flow meter.

Flow through the meter tube is measured electromagnetically, with electrodes sensing the voltage generated by the liquid moving through a magnetic field. Receiving this voltage is a Foxboro Dynalog Recorder, which logs the flow data vital to plant operation. Since the meter puts no restriction in the line, no pressure is added.

The tube was fabricated from layers of fiberglass cloth bonded by polyester resin. For further information, write THE FOXBORO CO., FOXBORO, MASS., or you may use the Post Card on the insert following Page 52. Circle No. 728.

Tractor-Mounted Curb and Sidewalk Edger

With Speed-Trim, one man can accomplish edging and clean-up operations at 10 miles per hour (or maximum safe tractor speeds).

This new development in tractor-mounted edging features a pivot cutting arm. The self-sharpening, disc-type safety blade can be switched to either side of the tractor in less than a minute by removal of

Speed-Trim, featuring a pivoting cutting arm, cuts costs, curbs and sidewalks.

one securing bolt which permits pivoting. The hydraulic lift arrangement on the tractor can be utilized for fast pivoting action, permitting the disc blade to roll around to the new position. Operator can remain consistent with or against traffic for safer operation.

The pivoting cutting unit is most efficient in getting into "tight squeezes," reducing the necessity for a follow-up man. It also makes fast changes of the blade angle to meet varying edge situations. The unit, it is said, can be mounted on any three-point hitch tractor, by one man, in five minutes.

Edging at maximum tractor speeds is accomplished by special design that permits automatic shifting of the entire unit so that the blade holds a given edge if the tractor goes in and out even as much as 16 inches. Three-way blade angle, equally effective on sidewalks, adapts to all edging situations. Weight box holds additional weight to effect cutting through heavy soil buildup.

For further information, write JIM EAGLE SALES COMPANY, MANUFACTURER, 265 TEXAS ST., FORT WORTH, TEXAS, or you may use the Post Card on the insert following Page 52. Circle No. 712.

Layne & Bowler, Inc. Elects New President

C. E. Ponkey of Memphis, Tenn., was named president of LAYNE & BOWLER, INC., worldwide water well drilling organization with headquarters at Memphis, at a special meeting of the board of directors.

Mr. Ponkey succeeds W. H. Reeves, who is retiring after serving 52 years in various official capacities for Layne & Bowler, Inc., but will continue to serve in consulting capacity as a vice president.

Mr. Ponkey was formerly executive vice president of Layne & Bowler, Inc., which was founded in 1882, employs more than 3,500 persons in all parts of the world, and maintains more than 500 drilling and service rigs in constant use.

The Layne organization is the only one in the world which offers a complete water well service, including the manufacture of its own pumps, drilling of the water well, chemical treatment and complete maintenance service of wells, including water treatment.

Other officers named at the meeting include J. G. Gordon III, vice president; F. T. Quinn, vice president in charge of manufacturing; L. G. Ost, secretary-treasurer; and W. E. Theobald, assistant secretary and assistant treasurer. All reside in Memphis.

C. E. Ponkey

E. J. Rogers, president of Layne-Northwest Co., Milwaukee, Wis., was reelected chairman of the board of directors. Also named to the board are F. R. Gibson, Layne-Louisiana Co., Lake Charles, La.; O. F. Jensen, Layne Texas Co., Houston,

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CONSTRUCTION CASTINGS
DELIVERED ON TIME!
Patterns on hand for over 15,000 different Gray Iron and Ductile Iron construction castings.
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Mark-Rite Model 9000 LINEMASTER automotive type clutch and differential with chain drive deliver maximum power with no slippage and will climb grades up to 20%.

★ **MODEL 9000**
Self-propelled

Mark-Rite
LINE MARKER
Pays Its Own Way

Users of the Mark-Rite Model 9,000 one man operated Line Marker report that it lays 25% to 50% more line per day than other machines.

This machine was designed for use in cities, airports, counties and for other heavy duty uses. Precision built throughout. Stripes 1, 2 or 3 lines solid or skip simultaneously. One or two colors. Paint capacity 10 to 60 gals. Automotive precision steering and "Hairline" spray control issues clean straight or curved lines, in widths from 2" to 6". It can turn on a 6 foot radius. Accessories permit many other uses for this versatile machine, such as spray painting, insect and weed control spraying. Write today for literature or demonstration.

WRITE FOR CATALOG SHOWING THIS COMPLETE LINE

MODEL 301 MODEL 401 MODEL 8088 MODEL 80880 MODEL 9000

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UNIVERSAL MANUFACTURING & SALES CO.
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For full details consult your Michigan tractor shovel distributor or •••••

LOAD SWEEPER DIV.
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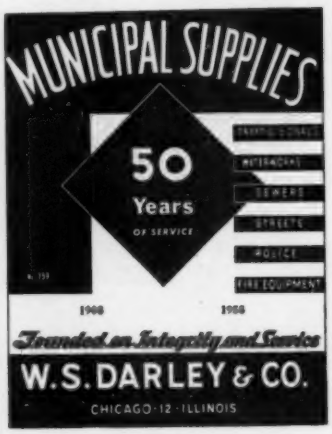
NEW CATALOG!



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Texas; R. O. Joslyn, Layne-Western Co., Kansas City, Mo.; W. A. North, Layne-New York Co., Linden, N. J.; Paul Schweitzer, Layne-Atlantic Co., Norfolk, Va.; and Mr. Ponkey, Layne & Bowler, Inc., Memphis.

Street Lighting Control

This new automatic lighting control, developed for Wheeler-Fullerton Lighting Division of Franklin Research Corp., Boston, Mass., is adaptable to any street light now in operation, and will turn on light exactly when needed, day or night. It works through a special cadmium sulphide photoconductive element that reacts to light, but cannot be accidentally actuated by stray artificial light from automobiles' lighting or neon lights.

The device, which has been designated "Skywatch", is said to be shock- and vibration-proof and will operate throughout a temperature range of —40° C. to +80° C. Both in diameter and height it is 3 inches. Control switch rating is 1,000 or 1,800 watts of incandescent lamp load; operating level, 1 to 1.5 foot-candles at the turn-on point and 2 to 3 foot-candles at the turn-off point.

For additional information and specifications, write WHEELER-FULLERTON, 275 CONGRESS ST., BOSTON, MASS., or you may use the Post Card on the insert following Page 52. Circle No. 707.

Vehicle Supervised Signals

The "EC" vehicle supervised traffic control system was discussed in a major article in THE AMERICAN CITY for November 1958. Several cities are already installing this new system. Minneapolis, Minn. would have its new "EC" system installed if it weren't for the extremely cold weather. Among others, Niagara Falls, N. Y. will soon install it.

The local controller of the EC sys-

tem is completely electro-mechanical and flexible, limited only by the demands of the master controller. The master controller is simple or complex, based on standardized electronic building blocks.

Each local controller "thinks" for itself as to the shortest route to the "called for" offset change and slows down or speeds up accordingly. The master controller is built to anticipate these transfers in advance in order that delay will not occur at a time when it is most unwelcome.

The system is basically a sampling system which will control arteries or grids automatically during normal volume periods. The local controllers respond second by second to the demand of the electronic computing master. But the system also has built-in program override and what may be just as important, built-in manual override.

These additional built-in plus factors are the reasons why EAGLE SIGNAL CORP., MOLINE, ILL., calls it *a vehicle supervised system*, rather than a sampling system. For additional information, write the company, or you may use the Post Card on the insert following Page 52. Circle No. 724.

Fast Photocopiers

Transcopy "Star" and "Mercury" are two new photocopy units. They expose prints in three seconds and process them in eight seconds. Add to these 11 seconds another nine or ten seconds for paper handling and a copy can be made for use in 20 seconds.

The Star exposes, develops and prints finished copies of originals up to 9½" wide of any length. It is 14 inches wide, 22 inches long, 5 inches high, and has a throat width of 9½ inches. *The Mercury* has a throat width of 15½ inches, and is 14 inches wide, 29 inches long, and 5 inches high.

For further information, write REMING-

New photocopiers introduced by Remington-Rand are the Star (bottom) and the Mercury.

Fast Clean Up
M-B SWEEPERS
Clean dirt, leaves, debris, snow — most everything — from streets, sidewalks, playgrounds, etc. Economical M-B Sweepers fit all popular tractors, many tractor loaders. Available with two-way hydraulic drive and one-way mechanical drive. Your tractor dealer has full details, or write to the M-B Corporation, New Holstein, Wisconsin.
Sweepers to fit every need.
TWO-WAY HYDRAULIC
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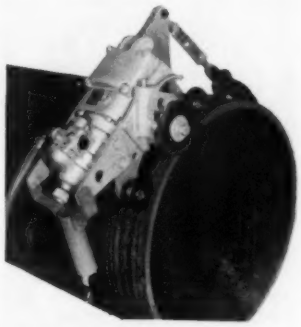

Fein

PORTABLE AUTOMATIC PIPE SAWS

A **Fein Saw** will produce a milling cut quickly and economically on 6" to 60" pipe in or out of the trench, even under water.

Hundreds of Superintendents and Contractors are saving time, labor, and money every day through the use of **Fein Saws.**

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LOWER SERVICE COSTS
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STOCK this useful tool for every service CAR and CALL •
Speed Locating • Keep Customers Happy

- **NO WIRES, BATTERIES or SWITCHES**—simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
- **NO NEEDLE SPINNING**—exclusive electric braking action saves you time!
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- **RUGGED**—compact, accurate, convenient!
- **GUARANTEED**—to function regardless of weather, surface or ground cover!
- **NATION'S MOST WIDELY USED LOCATOR!**
- **15-DAY FREE TRIAL**—No money! No obligation! You be the judge!

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AQUA SURVEY & INSTRUMENT CO.
2010 Leslie Avenue Cincinnati 12, Ohio

Big tool boxes hold full set of tools; fuel tank holds 8 hours' supply. Radiator shutters adjust to weather. Pneumatic tired retractable dolly is standard.

Jobs go smoother with a Jaeger Rotary

All users notice the difference. Jaeger's slower running speed (only 1700 rpm @ full load) consumes less fuel; better control holds pressure constant; air is 100° cooler than with old-type compressors; the machine is smoother, quieter, simple to operate, easy to move. Ask your Jaeger distributor to show you, or send for Catalog JCR8.

The Jaeger Machine Company • 505 Dublin Ave., Columbus 16, Ohio

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We Can Supply 5, 50, or 5,000 Embossed Aluminum or Steel Signs, posts, new 1-pc. aluminum bracket.

OVER 200 U. S. STANDARD TRAFFIC SIGNS CARRIED IN STOCK FOR PROMPT SHIPMENT

new - HAND SIGNS

Here's a new 18" two-sided Lightweight Aluminum hand sign for schools, rail crossings, construction crews, utilities, industrial plants, etc.

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- NEW HEATED SWIMMING POOL.
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- Spacious Lawn and Patio.
- Free Parking.
- Near all attractions.

$3 Daily per person, two in a room, Labor Day to Feb. 1

28 of 44 units at this price.

Write, Wire or Phone CL 2-1452 For Reservations

Under the personal direction of C. C. Hansen (Owner)

OPEN YEAR ROUND

Copacabana MOTEL

1201 S. Atlantic Ave. (Hwy. A1A)

Purchasing

TON RAND DIVISION of SPERRY RAND CORP., 315 FOURTH AVE., NEW YORK 10, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 722.

10,000-Lumen Post Top Luminaires

Post top luminaires using incandescent lamps rated through 10,000 lumens or mercury vapor lamps rated through 250 watts are offered for lighting swimming pools and other recreational areas.

They are available in natural aluminum or pastel colors with or without matching colored aluminum standards in lengths of 10, 14 or 19 feet. For further information, write LINE MATERIAL INDUSTRIES, MCGRAW-EDISON CO., SOUTH MILWAUKEE, WIS., or you may use the Post Card on the insert following Page 52. Circle No. 721.

Now You Can Lease Lawn Sprinkler Systems

An unusual lease plan for Aqua-Dial Automatic Lawn Sprinkler Control Systems has been announced by AVSCO (Automatic Valve Systems Co.) through an arrangement with the United States Leasing Corp., largest company of its kind engaged exclusively in leasing of diversified equipment. It is a method whereby schools, cities, counties, states, parks, golf courses, etc., may have an Automatic lawn sprinkler system installed where funds for such equipment are not immediately available.

Rates vary according to the size of the installation and the length of the lease (3, 4 or 5 years), which is determined by the lessee and his financial strength. A deposit of at least two to five months' lease payments is required, depending on the amount of the lease. At the end of the lease period, the lessee has the option

to purchase the equipment, or extend the lease at a reduced rate.

Benefits which may be included in the Aqua-Dial lease plan are landscape architect fees, plant materials and turfing, contractor installation fees. The lessee, or his agent, has full control as to quality of installation and the materials used. All manufacturer's warranties are passed on to the lessee on the same basis as a cash transaction.

More information on this plan, and a descriptive brochure, may be obtained by writing to AVSCO, P. O. Box 518, NEWPORT BEACH, CALIF., or you may use the Post Card on the insert following Page 52. Circle No. 714.

New Sales Offices for Pittsburgh-Des Moines

The Pittsburgh-Des Moines Steel Company has opened new district sales offices at New York City and Baltimore.

The New York office, 200 E. 42nd St., takes over the duties previously handled by the Newark, N. J. office, now discontinued. District manager of the New York office is J. E. O'Neill, formerly of the Pittsburgh sales headquarters.

The Baltimore office is under the direction of C. R. Ford, formerly district manager at Newark, and is located at the company's new fabricating plant at Curtis Bay Station.

Control of Parking Lots

As this stewardess from American Airlines approaches the gate to New York International Airport's semiautomatic parking lot, a magnetic coil beneath the road senses the presence of the car and causes the ticket dispenser to stamp date and time on the ticket. She is accepting the ticket from the machine. Then the Westinghouse system permits the car to enter by raising the parking lot gate. The gate closes when the car passes over a second magnetic coil.

The Cypak system can also adapt itself to a steady stream of incoming cars. For instance, if one driver is passing through the gate just as a second driver receives

GOLDAK TRANSISTORIZED LOCATORS

Pipe Locator-Leak Detector "Dualtronic" Model LC-5T

The new "Dualtronic" combines the finest transistorized Pipe Locator ever developed with a high-gain Leak Detector to produce an effective and useful multi-purpose instrument. Designed specifically for Municipalities and Water Companies, the LC-5T assures pin-point detection of pipes, cables, mains and laterals and becomes a sensitive detector for water leaks simply by plugging in a crystal, rubber-encased microphone. Additionally, by a simple manipulation the new "Dualtronic" will pin-point valves, risers, boxes, and manhole covers. Now with transistors the versatile LC-5T is lighter, more sensitive, easier to operate, and it requires only flashlight batteries . . . Write today for further details on the "Dualtronic" and other Utility detection instruments.

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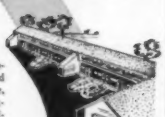

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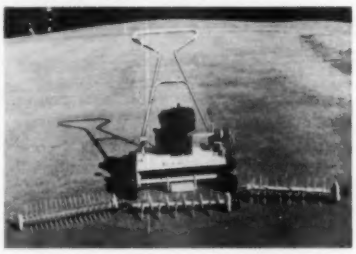
Purchasing

his ticket, the system leaves the gate up or, if the gate has started to close, it causes the gate to stop immediately and then to rise.

The system pleases not only air travelers, but also the Port of New York Authority. Absence of moving parts from Cypak control systems has meant no failures of this equipment in seven months of operation. For further information, write WESTINGHOUSE ELECTRIC CORP., BOX 2278, PITTSBURGH 30, PA., or you may use the Post Card on the insert following Page 52. Circle No. 701.

Turf Renovator with 18-Inch Swath



Ren-O-Thin eradicates crabgrass, chickweed, plantain and other close growing weeds and eliminates thatch on creeping bent, Bermuda and other stem grasses. It uses the principle of vertical cutting knives that will scarify, thin or slice heavily matted turf. And it is also valuable for ripping out winter killed areas.

This renovator, which is powered by a 3-hp motor, comes with a choice of two interchangeable reels: one with S-shaped knives for slicing and thinning, the other with spring wire fingers for renovating. A grass catcher for picking up the cuttings is also available. For additional information, write SOLAIRE INDUSTRIES, 1108 NICOLLET AVE., MINNEAPOLIS 3, MINN., or you may use the Post Card on the insert following Page 52. Circle No. 727.

Repairs Any Street Surface

ZOR-X, a new, all-weather outdoor patching material developed by The Monroe Co., Inc. of Cleveland, Ohio, can be applied quickly and economically, even in winter months and even if the surface is wet or the temperature as low as 15° F. It is ideal for filling chuck holes, cracks and ruts in blacktop, concrete, brick, stone and cinders.

The depression or crack has only to be filled with ZOR-X, then tamped. No prime coat is required. Repaired areas are said to take the heaviest loads immediately. ZOR-X comes ready to use

Purchasing

and is available in two grades: one for depressions less than 2 inches deep; one for holes more than 2 inches deep.

Fir additional information, write THE MONROE CO., 10707 QUEBEC AVE., CLEVELAND 6, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 726.

Redesigned Street Light Bracket

Hubbard and Company has improved its round brace type No. 23208 street light bracket by adding a flat steel supporting strut between the pipe and round brace. This gives the 8-foot-long galvanized steel bracket greater strength and makes it better suited for use with 400-watt mercury vapor luminaires with built-in ballasts.

The bracket is designed for attachment to wood poles, or metal poles by using bands, and meets all E.E.I. requirements for Specification TDJ-137. For further information, write HUBBARD AND COMPANY, 200 S. MICHIGAN AVE., CHICAGO 4, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 739.

About People

James A. Robbins, sales engineer, will be serving an expanded Southeast territory for White Diesel Engine Division, according to W. F. Burrows, vice-president and general manager. Mr. Robbins' appointment extends direct factory representation to all of Florida, Georgia and the Carolinas for this Division of the **White Motor Company,** Springfield, Ohio.

William W. Greenway has been elected a vice president, in charge of all operations of **United Concrete Pipe Corporation,** according to an announcement by Lloyd Earl, president. United Concrete Pipe Corporation, a subsidiary of U. S. Pipe & Foundry Company, operates plants in California, Texas, Utah, and Washington, producing all types of concrete pipe as well as custom fabricated steel products. Headquarters are in Baldwin Park, Calif.

W. W. Greenway

The promotion of Richard L. Spetka to the post of manager, power engine sales, is announced by Grant C. Woodward, general sales manager of **The Cooper-Bessemer Corporation,** Mount Vernon, Ohio. Mr. Spetka will head the company's sales engineering program on 4-cycle engines for all stationary services such as power generation, as well as marine and other mobile services.

Crouse - Hinds Company, Syracuse, N. Y., announces the appointment of Stephen DeCoste to a new assignment as supervisor of sales of plugs, receptacles and connectors, at the headquarters office in Syracuse. Mr. DeCoste will work closely with the company's coast-to-coast field sales organization.

The **Jefferson Electric Company,** Bellwood, Ill., has announced the appointment of Emmett J. Fallon, Jr. to the post of distributor sales manager. According to Edward J. Bennan, Jefferson president, Mr. Fallon will "direct the activities of our field personnel in their work with electrical distributors. This will include a major effort to help the distributor serve his customers, the electrical contractors, in the best possible way."

Marc B. Rojtman, president of the **J. I. Case Company,** Racine, Wis., has just anounced the appointment of Lawrence H. Hodges as manager of the company's Rockford, Illinois Works.

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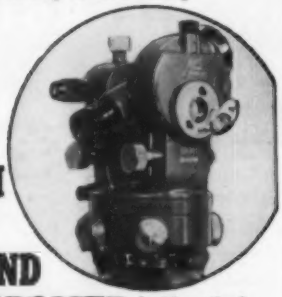

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About People

B. M. Wallis

Vern L. Schield, chairman of the Board of the **Schield Bantam Co.**, Waverly, Ia., has announced the election of Buel M. Wallis as a vice president and officer of the company. As vice president-director of marketing, Mr. Wallis is responsible for the sales department, order bureau, service, parts, traffic, domestic and export sales departments.

Buel Wallis was also recently elected a director of the Construction Industry Manufacturers Association, whose members furnish construction machinery, allied equipment, components, supplies and publications to the construction industry. Two hundred forty-three companies now represented in CIMA supply approximately 95% of the dollar volume of the construction machinery sold in the United States.

The promotion of Marion F. Huff, Southeast district sales manager for the Municipal and Utility Division, **Rockwell Mfg. Co.**, Pittsburgh 8, Pa., to the position of assistant district sales manager is announced by John G. Hoyt, Southeast district sales manager.

As advertising manager, Art Parchen will direct a new, expanded program of direct mail and trade magazine advertising for **Smith & Loveless, Inc.**, Kansas City, Mo., leading manufacturer of water and sewage equipment for municipal and private use.

Three appointments in its domestic sales department for commercial cranes and excavators anounced by **Bucyrus-Erie Co.**, South Milwaukee, Wis., are: Paul J. Thiel, sales administration supervisor; Byron A. (Bud) Haney, product development manager; Frederick B. Shew, sales development manager. All three men are stationed at the home office in South Milwaukee.

Because of increased sales activity in the Middle Atlantic States, **Neptune Meter Company**, New York, N. Y., has effected a complete revision of sales territories in the Philadelphia-Washington area, it was announced recently by James C. Judge, Neptune's Eastern Regional Manager.

The sales territory covered by the changes includes Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and Washington, D. C.

The sales representatives in the territory now have the following assignments: Harry Siebert will handle water, industrial and petroleum meter sales in Virginia, Delaware, Maryland and Washington, D. C.; H. A. Lentz, industrial and petroleum meters in Pennsylvania, water meters in the Philadelphia area, and Superior gas meters, and Neptune petroleum and industrial meters in metropolitan Wilmington, Del., Baltimore, Md., and Washington, D. C.

Russell Rutan's sales territory includes all of West Virginia, and portions of Virginia and Maryland, where he will sell Neptune water, industrial, and Red Seal petroleum meters.

Ed Game will handle Superior gas meters in Pennsylvania, Delaware, Maryland, Virginia and West Virginia except for certain areas previously assigned.

Joe Vetromile's selling area now includes central and western Pennsylvania, where he will sell water meters.

Accounts not covered by the aforementioned salesmen will be handled from the Philadelphia office.

In conjunction with the change, the Philadelphia Office, under the direction of recently appointed branch manager G. W. Moore, has been moved from 1420 South Penn Square to new and larger quarters at 7 Bala Ave., Bala-Cynwyd, Pa.

David Levine, landscape architect and architect, and partner in the firm of **John J. Kassner & Co.**, Consulting Engineers, 6 Church Street, New York 6, N. Y., has been sworn in by Mayor Robert F. Wagner as the landscape architect member of the Art Commission of the City of New York, for a three-year term.

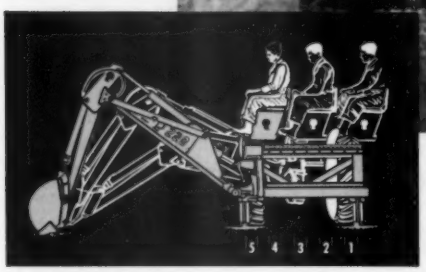
The Asphalt Institute has appointed Clinton C. Gregory of Pierre, S. Dak., to fill the new post of district engineer for North and South Dakota.

John K. Shoemake and Carl B. Paepke were recently appointed district sales representatives by **Huber-Warco Co.**, Marion, Ohio. Mr. Shoemake, who will headquarter in Seattle, Wash., will be responsible for the territory that includes the states of Montana, Idaho, Wyoming, Oregon, Washington, and Alaska, and the provinces of British Columbia and Alberta, Canada. Mr. Paepke's territory includes the states of Connecticut, Massachusetts, Rhode Island, Maine, Vermont, New Hampshire and upper New York State, as well as the provinces of Ontario, Quebec, New Brunswick and the Maritimes.

Changes in the sales department of **Pacific States Cast Iron Pipe Company** of Provo, Utah, include the advancement of T. L. Johnson, for many years sales manager of Pscipco, to the position of vice president-sales of McWane Cast Iron Pipe Co., at Birmingham, Ala. to succeed W. P. Cox, retiring. (McWane is parent company of the Utah concern.)

L. Glade Anderson, formerly district sales manager at Los Angeles, Calif. is now assistant sales manager at Provo, while P. Ned Pope, sales representative at Pscipco's Seattle office, takes over

the GREATEST BACKHOE of ALL!



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About People

Mr. Anderson's assignment at Los Angeles. J. Don Broadhead has been assigned to the Seattle office.

Good Roads Machinery Corp., Minerva, Ohio, announces the appointment of James W. Orton as sales manager.

M. J. Shelton, formerly deputy director of the California State Department of Water Resources, has joined the consulting engineering firm of **Koebig and Koebig,** Los Angeles 5, Calif. He is to be chief engineer of the company's new San Diego office at 615 Broadway.

Appointment of Leo Jauhola as sales manager of Filtration Engineers Division has been announced by **American Machine and Metals, Inc.,** East Moline, Ill. In announcing the appointment, R. M. Hammes, general sales manager, also stated that Walter Graulich, a member of the Filtration Engineers organization until 1958, has returned to replace Mr. Jauhola as eastern sales engineer.

Frank M. Gray has been promoted to senior product engineer in the product engineering department of **Armco Drainage & Metal Products, Inc.,** according to an announcement made by M. C. Patton, executive vice president of the Armco Steel Corporation subsidiary.

Promotion of E. R. Carey, manager of general markets sales, to assistant sales manager, Regular Products, was announced recently by Charles Kuhn, sales manager, Dresser Manufacturing Division, **Dresser Industries, Inc.,** Bradford, Pa.

Morton Salt Company, Chicago 6, Ill., has named Robert L. Young to the position of Industrial Water Softening Specialist. Mr. Young will work with water softening manufacturers and consulting engineers.

The Construction Machinery Division of **Clark Equipment Company,** Benton Harbor, Mich., announces the appointment of William A. Keehn as special representative and John R. Horton as district representative. Mr. Keehn will work with "Michigan" distributors throughout the country, primarily demonstrating new machines, visiting projects and plants and evaluating customers' equipment needs. Mr. Horton will be responsible for sales of the "Michigan" line of construction and bulk materials handling equipment through distributors in Ohio, Michigan, Indiana and Kentucky.

Houghton R. Hallock, who recently resigned from his position of executive vice-president of The Texas Atomic Energy Research Foundation, has joined the Consulting Engineering firm of **Gannett Fleming Corddry and Carpenter, Inc.,** in Harrisburg, Pa., as director, General Engineering Division.

At a recent meeting of the Advertising Club of Denver, Colo., Gerould A. Sabin, advertising director of the **Colorado Fuel and Iron Corporation,** was presented with the award, "Advertising Man of the Year". The award, which has been given to only two other persons in the past, was made for "ethical performance of advertising" during a lifetime career in advertising.

George E. Glover, recently named manager of the industrial waste department of the **Cochrane Corporation,** Philadelphia, Pa., will be in charge of the company's activities in industrial waste treatment and special exchange applications.

Ronald V. Lints has been named advertising manager by **Fischer & Porter Co.,** Hatboro, Pa., manufacturer of complete process instrumentation, flowmeters, chlorination and automation equipment, and glass products.

The appointment of Jay G. Gates as a sales representative for **The Fisher-Pierce Co.,** South Braintree, Mass., is announced by F-P sales manager A. C. Stohn. Mr. Gates' territory for the photoelectric lighting control firm includes southern Ohio and the entire state of Kentucky.

At **Cataphote Corporation** of Jackson, Miss., Jack E. Fagala becomes general manager of the Mississippi traffic control products and William L. Lowry sales manager. Charles E. Searight, vice-president of the corporation, said the reason is increased sales and the expansion of the company's new plastic division.

J. B. Cook, Jr., sales manager, General Products Division—**Hays Manufacturing Co.,** Erie, Pa., announces the appointment of Paul E. Cook as Junior Salesman assisting Arthur Turner in the Michigan territory and the appointment of Frederick S. Willson as sales representative of the General Products Division in the territory comprising Illinois, Indiana, and Kentucky.

The Galion Iron Works & Mfg. Co., Galion, Ohio, informs us that Charles Findley Boyd, associated with the firm for 42 years and for the past 12 vice president in charge of sales, died on March 6.

J. Wiley Perry, Jr., manager of sales-pressure pipe, **Alabama Pipe Co.,** Anniston, Ala., was elected a vice president at the company's annual meeting. He will continue in charge of pressure pipe sales.

Word has been received of the death of Gary F. Davis on March 11. Associated with **Ernest Holmes Co.,** Chattanooga, Tenn., since 1945, Mr. Davis held the position of sales manager at the time of his death.

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Index to Advertisers

Abrams Aerial Survey Corp ... 239
Aero Service Corp ... 239
Aireactor Corp ... 216
Alabama Pipe Co ... 80
Allis-Chalmers Mfg. Co ... 24, 25
Alster & Associates, Inc ... 239
Aluminum Co. of America ... 196
American Air Surveys, Inc ... 239
American Bitumuls & Asphalt Co ... 208
American Cast Iron Pipe Co ... 174
American Coleman Co ... 143
American-Marietta Co ... 66
American Pipe & Construction Co ... 26
American Telephone & Telegraph Co ... 4
Amman & Whitney ... 239
Anthracite Equipment Corp ... 214
Aqua Survey & Instrument Co ... 221
Ariens Co ... 78
Armco Steel Corp ... 180
Asplundh Chipper Co ... 82
Associated Surveys ... 239
Audio Equipment Co., Inc ... 233
Austin-Western, Construction Equip. Div., Baldwin-Lima-Hamilton Corp ... 176, 177
Automatic Voting Machine Corp ... 161

Badger Meter Co ... 38, 39
Bathey Mfg. Co ... 216
Baughman Mfg. Co ... 184
B & B Engineering Corp ... 239
Behrends & Associates John J ... 214
Bell Telephone System ... 4
Bellerive Hotel ... 214
Beltz Engineering Laboratories ... 240
Berger & Associates, Louis ... 240
Bethlehem Steel Co ... 83
Black & Veatch ... 240
Blackburn-Smith Mfg. Co., Inc ... 238
Bradley Washfountain Co ... 64
Brockway, Weber & Brockway Engineers, Inc ... 240
Brown Engineering Co ... 240
Buchart Engineering Corp ... 240
Buck, Seifert & Jost ... 240
Buffalo Meter Co ... 65
Buffalo Pipe & Foundry Corp ... 160
Burgess & Niple ... 240
Burke, Inc., Ralph H ... 240
Burns & McDonnell ... 241
Burroughs Corp ... 81

Calmet Meter Div., Worthington Corp ... 159
Carver Associates, Peter ... 241
Case Co., J. I ... 195
Cast Iron Pipe Research Association ... 50, 51
Caterpillar Tractor Co ... 6, 10, 252
Charles Machine Works ... 185
Chastain & Associates, Homer L ... 241
Chevrolet Motor Div., General Motors Corp ... 12, 13
Chicago Aerial Industries, Inc ... 241
Chicago Bridge & Iron Co ... 14
Clark Aerial Survey Corp ... 241
Clark Equipment Co ... 254
Clarkeson Engineering Co., Inc ... 241
Clark-Wilcox Co ... 230
Cleminshaw Co., J. M ... 241
Cloroben Chemical Corp ... 156
Cole & Son, Charles W ... 241
Cole-Layer-Trumble Co ... 214, 241
Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div ... 30, 31
Consoer, Townsend & Associates ... 241
Cooper-Bessemer Corp ... 162
Copacabana Hotel ... 232
Crescent Plastics, Inc ... 188
Crouse-Hinds Co ... 136
Curtis Automotive Devices, Inc ... 225

Damon & Foster ... 242
Darley & Co., W. S ... 230
Day & Zimmermann, Inc ... 242
Deere Industrial Div ... 72
De Leuw, Cather & Co ... 242
Dempster Brothers, Inc ... 42
Dolge Co., C. B ... 192
Dresser-Ideco Co ... 126, 127
Dual Parking Meter Co ... 131
Duncan Parking Meter Corp ... 53

Eagle Signal Corp ... 47
Eau Claire Sand & Gravel Co ... 234
Eddy Valve Co ... 155
Edwards & Kelcey ... 242
Emhart Mfg. Co., Maxim Div ... 167
Electrical Testing Laboratories, Inc ... 242
Ellinor Village ... 235
Empire Gas Engineering Co ... 242
Essick Mfg. Co ... 188
Etnyre & Co., E. D ... 192
Evinrude Motors ... 207
Ewin Engineering Corp ... 242
Expanding Sewer Machine Co ... 214

Fairbanks, Morse & Co ... 58
Fairchild Aerial Surveys, Inc ... 242
FencPainter Manufacturers ... 184
Ferro Enameling Co ... 183
Fitchburg Engineering Corp ... 191
Flexible, Inc ... 146
Flex-O-Lite Mfg. Corp ... 119
Flynn & Emrich Co ... 80
Ford, Bacon & Davis ... 243
Ford Motor Co ... 68, 69
Franklin Worsted Co ... 212

Galion Iron Works & Mfg. Co ... 52
GameTime, Inc ... 171, 172
Gannett Fleming Corddry & Carpenter, Inc ... 243
Gardiner Electronics Co ... 227
Gar Wood Industries ... 151, 152, 153
General Electric Co ... 200
Gibbs & Hill Inc ... 243
Gilbert Associates, Inc ... 243
Goldak Co ... 233
Good Roads Machinery Co ... 82
Grace Sign & Mfg. Co ... 216
Gravely Tractors, Inc ... 222
Green Co., Howard R ... 243
Greenlee Tool Co ... 76
Griffith, L. B ... 243
Grimm Stamp & Badge Co ... 232
Gunite Concrete & Construction Co ... 243

Hamilton Div. of Baldwin-Lima-Hamilton ... 63
Hamilton-Kent Mfg. Co ... 77
Hardesty & Hanover ... 243
Harley-Davidson Motor Co ... 178
Harris, Henry & Potter, Inc ... 243
Harza Engineering Co ... 244
Hays Mfg. Co ... 57
Hemco Engineers ... 244
Hersey Mfg. Co ... 168
Holophane Co., Inc ... 132
Hough Co., Frank G ... 221
Howard, Needles, Tammen & Bergendoff ... 244
Huber-Warco Co ... 147
Hunnicutt & Associates ... 244
Hurd Aerial Surveys, Inc., Mark ... 244
Hydepak Div., Hobbs Trailer Co ... 18
Hydro E-Z Pack Div., Hercules Galion Prod., Inc ... 71

International Aerial Mapping Co ... 244
International Harvester Co ... 33, 142
Iowa Valve Co ... 166
Irving Subway Grating Co., Inc ... 219

Jacobs & Co., J. L ... 244
Jaeger Machine Co ... 232
Joel & Aronoff, Inc ... 222
Johns-Manville ... 164
Johnson & Associates, Bernard ... 244
Joslyn Mfg. & Supply Co ... 34

Kaiser Aluminum & Chemical Sales Inc ... 203
K-D Mfg. Co ... 226
Kennedy, Clyde C ... 244
Kern Instruments, Inc ... 236
Kiefer Co., Adolph ... 233
Konski Engineers ... 244
Kroeger & Associates, Louis J ... 245
Kucera & Associates, Inc ... 245
Kuljian Corp ... 245

Lanterman, Engineers, W. G ... 245
Lathem Time Recorder Co., Inc ... 212
Layne & Bowler, Inc ... 23
Lindsay Co., Inc., P. K ... 222
Line Material Industries ... 117, 118
Lock Joint Pipe Co ... 60
Lockwood, Kessler & Bartlett, Inc ... 245
Ludlow Valve Mfg. Co., Inc ... 158

M-B Corp ... 74, 141, 231
M & H Valve & Fittings ... 54
Mack Trucks, Inc ... 28
Magee-Hale Park-O-Meter Co ... 138
Marbon Chemical Co ... 32
Martin Co ... 150
Massey Ferguson, Inc ... 237
Metcalf & Eddy ... 245
Miro-Flex Inc ... 192
Mobil-Sweeper Div. of Conveyor Co ... 206
Morrison-Maierle, Inc ... 245
Motorola Communications & Electronics, Inc ... 56
Muddeman & Assoc., John M ... 245
Mueller Co ... 36, 134
Multiplex Mfg. Co., Inc ... 62

National Disenfectant Co ... 194
National Lead Co ... 19, 20
National Power Rodding Corp ... 246
Neenah Foundry Co ... 229
Neptune Meter Co ... 84
Northern Gravel Co ... 41
Norton, Kobbins & Associates ... 246
Nussbaumer-Clarke & Velzy, Inc ... 246
Nutting Co., H. C ... 246

O'Brien Mfg. Co ... 16, 17
Oliver Corp ... 79
Onan & Sons, Inc., D. W ... 67

Palmer & Baker, Inc ... 246
Parcoa Div. of Johnson Fare Box Co ... 173
Parsons, Brinckerhoff, Hall & Mcdonald ... 246
Pfaff & Kendall ... 125
Pioneer Gen-E Motor Corp ... 78
Pitman Mfg. Co ... 210
Pitometer Associates, Inc ... 246
Pittsburgher Hotel ... 234
Portland Cement Association ... 186
Potts Associates, Clyde ... 246
Preload Co., Inc ... 220
Prescott Tool Co., Inc ... 231
Press-Seal Gasket Corp ... 135
Price Brothers ... 55

Rader & Associates ... 246
Radiator Specialty Co ... 225
Raisch, William ... 247
Raynor Aerial Surveys ... 247
Read Standard, Div. of Capitol Prods., Inc. ... 128
Recordak Corp ... 199
Revere Electric Mfg. Co ... 140
Riddick & Assoc., Thomas M ... 147
Ripley Co., Inc ... 145
Robert & Co. Associates ... 247
Rock of Ages Corp ... 82
Rolatape, Inc ... 223
Russel & Axon ... 247
Rust Oleum Corp ... 37

Sanborn Map Co ... 247
Sargent Sowell ... 234
Schield Bantam Co ... 202
Schramm, Inc ... 70
Seay, Irby Co ... 247
Seelye Stevenson Value and Knecht ... 247
Servis, Van Doren & Hazard ... 247
Sherman Products, Inc ... 40, 213
Shoup Voting Machine Co ... 21
Simplicity Mfg. Co ... 224
Skrainka Construction Co ... 227
Smith & Gillespie ... 247
Smith & Loveless, Inc ... 190
Standard Steel Works, Inc ... 211
Stanley Engineering Co ... 248
Steinman, D. B ... 248
Stelling, Lord-Wood and Van Suetendael ... 248
Stellwagen, Robert H ... 248
Stilson & Assoc., Ltd., Alden E ... 248
Strataflo Products, Inc ... 224
Strato-Tower Div., Young Spring and Wire Co ... 215
Studebaker-Packard Corp ... 204

Tarrant Mfg. Co ... 161, 216
Texas Co ... 2
Tinker & Rasor ... 184
Todd Shipyards Corp ... 227
Toledo Testing Laboratory ... 248
Tractomotive Corp ... 218
Trojan Mfg. Co ... 80
Turbine Sewer Machine Co ... 228

U-C Lite Mfg. Co ... 73
Unimasco, Inc ... 230
Union Metal Mfg. Co ... 120
United Metal Mfg. Corp ... 78
U. S. Rubber Co., Mechanical Goods ... 182

Vibro Plus Products, Inc ... 8

Wainright & Ramsey, Inc ... 248
Wald Industries, Inc ... 122
Washington Aluminum Co.,Inc ... 161
Watkins, J. Stephen ... 249
Waukesha Motor Co ... 148
Wayne Mfg. Co ... 49
Wegman Co., Leonard S ... 249
Wenzlick & Co., Roy ... 249
Western Industries, Inc ... 228
Weston, Inc., Roy F ... 249
Wheeler-Fullerton ... 144
Wheeling Corrugating Co ... 44, 45
Wilkins & Assoc., E. T ... 249
Williams Inspection Co., Inc., A . W ... 249
Wilson & Co ... 249
Wisconsin Motor Corp ... 61
Wood Brothers Mfg. Co ... 207
Worthington Mower Corp ... 75
Wyco, International ... 141

Yale & Towne Mfg. Co., Trojan Div ... 253
York Corp ... 59

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To match your requirements, Caterpillar offers three modern, heavy-duty Motor Graders. There's the 75 HP, 20,805 lb. No. 112, or the 115 HP, 23,000 lb. No. 12. And for big jobs, the new 150 HP, 29,280 lb. Turbocharged No. 14—the most versatile big grader ever developed, recommended for everything from the roughest jobs to the finest grading. Each is designed to do more work at lower cost with less down time than any other unit in its class.

Public records from communities all over the country prove that the low total cost of Cat Motor Graders makes them the best investment for taxpayers' dollars. Get these facts, which cover yearly operation and maintenance, from your Caterpillar Dealer. See for yourself how a Cat Motor Grader is your best buy!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

4 OF THE NO. 12'S MANY FEATURES THAT PAY OFF IN LOW TOTAL COST!

Mechanical controls (standard) offer positive action, make blade adjustments precise. Powered right from the engine, they give a speed and range of blade movements that no other unit can match.

Preco Automatic Blade Control (optional) is available only on Cat Motor Graders. Now transistorized for freedom from maintenance and adjustment, it controls blade slope to an accuracy of within ⅛ inch in 10 feet, regardless of position of grader or unevenness of terrain. Fine for all types of grading.

Unequalled visibility results from the No. 12's dash-mounted lift gears and low frame design. While seated, the operator has an unobstructed view of the critical areas at the front wheels, toe of blade and circle.

Exclusive oil clutch provides up to 2,000 hours without adjustment—the equivalent of about 12 months of "adjustment-free" operation.

CATERPILLAR

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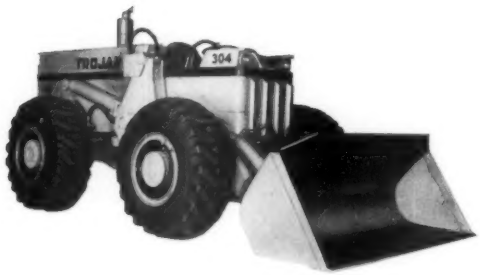
BUY LOW TOTAL COST— BUY CAT MOTOR GRADERS

TROJAN
YALE & TOWNE

ALL NEW 3yd. TROJAN

ENGINEERED FOR PEAK PRODUCTION



New low silhouette for greater visibility. Exceptional service accessibility . . . Heavy-duty front bumper integral with frame for added protection . . . Recessed headlights . . . 24-volt starting and lighting system . . . Foam rubber bucket seat for operator comfort.

The rugged new Trojan is engineered to tackle the toughest jobs industry can offer . . . We've put more time on the drawing board, more time on the proving ground — studied, job-tested and proven every detail of design and construction. The most demanding working problems a 3 yd. machine can face have been anticipated . . . Extra strength and extra power have been added . . . The result is a tractor-shovel that promises you unequalled profit-making performance.

In addition, we have maintained every familiar Trojan feature . . . The unparalleled safety of Trojan's patented safety curve lift arms . . . Powerful horizontal thrust and pry-out action with the full power of a big 160 h.p. Cummins diesel . . . Maximum lifting capacity of 9 tons . . . Wide tread and long wheelbase for better balance and stability . . . 4-speed full power shifting and 4-wheel power brakes as standard equipment — plus a host of other important features that result in faster, more efficient, more profitable operation!

Let your Trojan distributor point out how — feature for feature — the new Trojan 304 offers you more working benefits, more real value, than any machine on your job!

THE YALE & TOWNE MANUFACTURING COMPANY
TROJAN DIVISION BATAVIA, NEW YORK SAN LEANDRO, CALIFORNIA

TROJAN®
TRACTOR SHOVELS
YALE & TOWNE

How to save time pouring concrete under a low ceiling

Pouring a concrete floor, 80 by 180 feet, may be just an ordinary job—but *not* when it must be done with a ceiling only 10 feet above you. Yet that was the problem they faced in Nashville, Tennessee, recently—and licked! First floor and basement columns of a large building had been poured and in use for several years; now a 6-inch basement floor had to be poured and curtain walls built.

Other machinery too big or too slow

Before starting the job, engineers carefully considered the equipment on hand. Usual mixers and other machines measured too big for basement use. Wheelbarrows or "Georgia buggies" were sure to be too slow and costly. But there *was* one piece of equipment that *might* do the trick. They called a mobile Michigan Tractor Shovel in from loading work, and tried it out.

Michigan proves "extremely maneuverable" between columns

In its test, the Michigan Model 175A received a full bucket load of ready-mix from a transient mixer. With bucket "cradled" in normal low shock-resistant carry position, down the ramp it went into the building's basement. Less than 8 feet high, the Michigan easily cleared the first-floor beams overhead. Load was poured out quickly, carefully—and back out of the basement the Michigan went for another 2¼ yards (struck measure). Power-steered and power-shifted, the Michigan proved extremely maneuverable among the many supporting columns. So, from then on, it was Michigan all the way.

Rough-spreads concrete, too

It wasn't long before the job foreman discovered Michigan could do a good job of rough-spreading the ready-mix, too. Simply by lowering the bucket, holding it under pressure and dragging backwards, the Michigan left the surface ready for the finishing crew. Finger-tip bucket control and unusual maneuverability made this time consuming job a cinch, dispensed with many of the laborers ordinarily needed.

Try Michigan on YOUR problem-job

Everyone gets a "problem-job" from time to time. Maybe *you* have one *now*. If it involves loading or carrying bulk material, we'll wager a Michigan can do it quickly, efficiently, at a minimum cost. But, see for yourself! Won't cost you a penny. Just call your Michigan Distributor, ask him to arrange a demonstration. *You pick the job.*

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